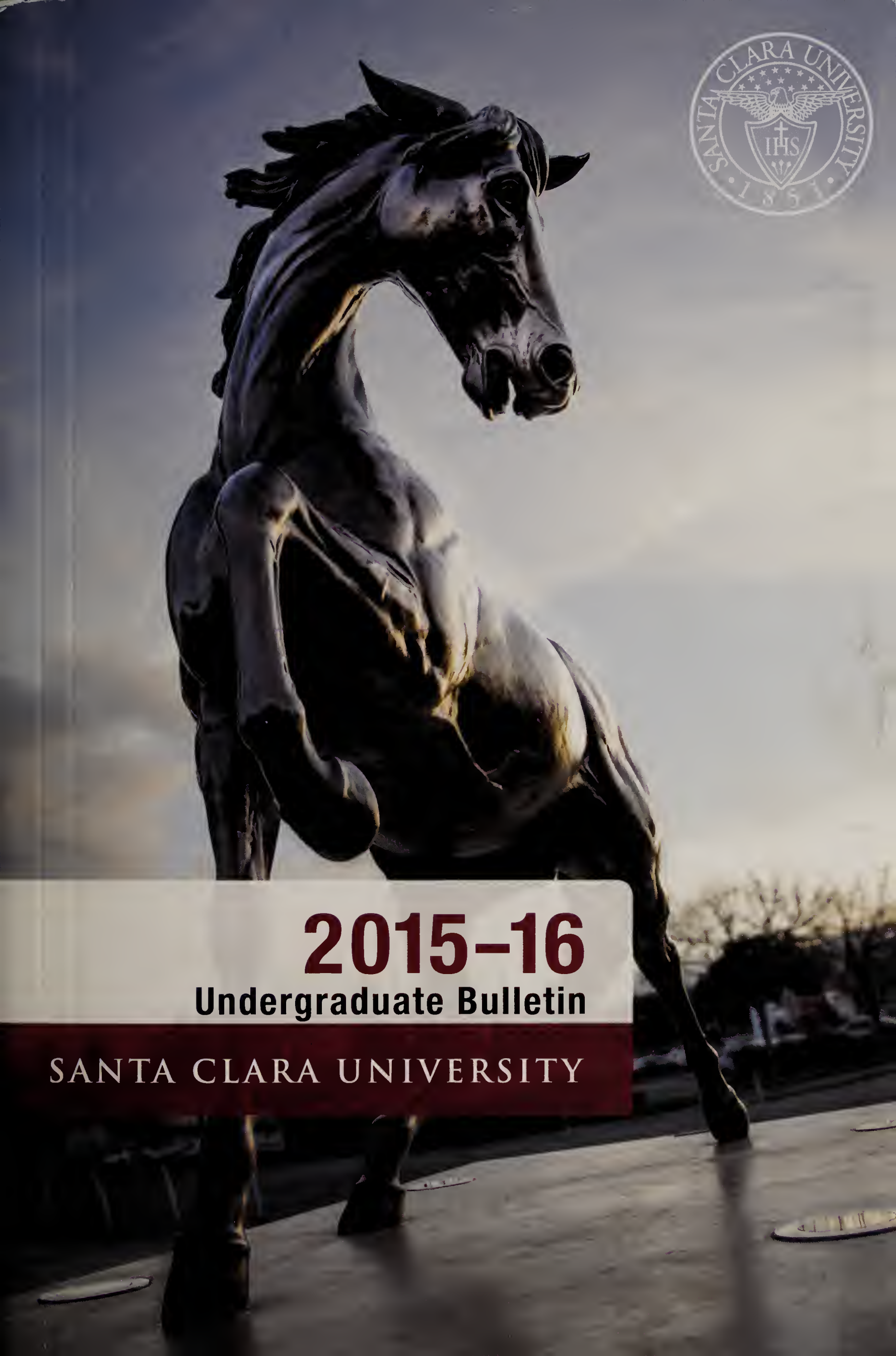

2015–16
Undergraduate Bulletin

SANTA CLARA UNIVERSITY

Undergraduate Academic Calendar
2015–2016 Academic Year
& 2016 Summer Session

FALL QUARTER 2015

Monday, Sept. 21	Classes Begin
Monday, Nov. 23 – Friday, Nov. 27	Academic Holiday
Friday, Dec. 4	Classes End
Monday, Dec. 7 – Friday, Dec. 11	Final Examination Period

WINTER QUARTER 2016

Monday, Jan. 4	Classes Begin
Monday, Jan. 18	Martin Luther King Jr. Day Holiday
Monday, Feb. 15	President's Day Holiday
Friday, March 11	Classes End
Monday, March 14 – Friday, March 18	Final Examination Period

SPRING QUARTER 2016

Monday, March 28	Easter Holiday
Tuesday, March 29	Classes Begin
Monday, May 30	Memorial Day Holiday
Friday, June 3	Classes End
Monday, June 6 – Thursday, June 9	Final Examination Period
Saturday, June 11	Commencement

SUMMER SESSION 2016

Thursday, June 16	Classes Begin – Session I
Monday, July 4	Independence Day Administrative Holiday (classes are in session)
Wednesday, July 20	Classes End – Session I
Thursday, July 21 – Friday, July 22	Final Examination Period – Session I
Monday, July 25	Classes Begin – Session II
Friday, Aug. 26	Classes End – Session II
Monday, Aug. 29 – Tuesday, Aug. 30	Final Examination Period – Session II
Monday, Sept. 5	Labor Day Holiday

Other important dates are available on the more detailed academic calendar on the University's website at ***www.scu.edu/studentrecords/Academic-Calendar.cfm****.*

Santa Clara University

Undergraduate Bulletin
2015–2016 Academic Year

Note on the cover photograph:

This bronze Bronco created by artist David Spellerberg stands more than 10 feet off the ground and is a reminder of SCU's renewed focus on Bronco pride.

The statue's location at a busy intersection between the Alpha Residential Learning Community, the Learning Commons, and Benson Memorial Center emphasizes Santa Clara's dedication to educating the whole person. Alumnus and Regent Jack Previte '70 conceived and spearheaded the project after being impressed by another statue created by artist David Spellerberg, owner of Great American Bronze Works Inc. Along with Previte, fellow donors Cyril G. Barbaccia, Joseph McCarthy '71, and Gary Filizetti '67, and the Bronco Bench Foundation made the statue possible. According to Previte, "This statue represents the spirit and the grace and the power that we want Santa Clara University alumni and students to possess."

PREFACE

The *Undergraduate Bulletin* contains the academic and administrative policies and regulations that govern enrollment of undergraduate students at Santa Clara University. Students are responsible for knowing all academic and administrative policies and regulations affecting their program of study and for abiding by all such policies and regulations during their period of enrollment at the University. Continued enrollment is subject to compliance with the academic and administrative policies and regulations as described herein and otherwise published by the University. Failure to understand the policies and regulations does not relieve a student of his or her responsibility for adhering to the policies and regulations.

Students are governed by the applicable degree requirements of the University and the Santa Clara Core Curriculum in the *Undergraduate Bulletin* and *Core Curriculum Guide* in effect in their entry year as first-year students. Transfer students normally follow the *Undergraduate Bulletin* and *Core Curriculum Guide* of their class cohort as determined by the number of transfer units accepted toward the Santa Clara degree upon admission. All students must fulfill the departmental or program major and minor degree requirements in effect when they declare their major or minor program of study.

Santa Clara University reserves the right to make changes to degree program requirements, academic and administrative policies and regulations, and course offerings published in the *Undergraduate Bulletin* at any time without prior notice. The University strives to assure the accuracy of the information in the *Undergraduate Bulletin* at the time of publication. However, the University reserves the right to make corrections as necessary to the *Bulletin*.

The *2015–16 Undergraduate Bulletin* was printed in June 2015 by the Office of the Provost and covers policies and regulations in effect as of that date. The *Undergraduate Bulletin* and other information about Santa Clara University can be found on the University's website at www.scu.edu.

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1

Santa Clara University

Located in the heart of California's Silicon Valley, Santa Clara University is a comprehensive Jesuit, Catholic university with more than 8,800 students. Founded in 1851 by the Society of Jesus, California's oldest operating higher education institution offers a rigorous undergraduate curriculum in arts and sciences, business, and engineering, plus nationally recognized graduate and professional programs in business, law, engineering, education, counseling psychology, pastoral ministries, and theology. The University boasts a diverse community of scholars offering a values-oriented curriculum characterized by small class sizes and a dedication to educating students for competence, conscience, and compassion. The traditions of Jesuit education—educating the whole person for a life of service—run deep in all of its curricular and co-curricular programs.

Santa Clara University is perennially ranked among the top comprehensive universities by *U.S. News & World Report* and has one of the highest graduation rates for undergraduate students among all comprehensive universities. The University has a national reputation for its undergraduate program that features a distinctive core curriculum, an integrated learning environment, and research opportunities for undergraduate students.

The University was established as Santa Clara College on the site of the Mission Santa Clara de Asís, the eighth of the original 21 California missions. The college originally operated as a preparatory school and did not offer collegiate courses until 1853. Following the Civil War, enrollment increased, and by 1875 the size of the student body was 275. One-third of the students were enrolled in the collegiate division; the remainder attended the college's preparatory and high school departments.

Santa Clara experienced slow and steady growth during its first 60 years, becoming the University of Santa Clara in 1912, when the schools of engineering and law were added. In 1925, the high school was separated from the University and took the name of Bellarmine College Preparatory in 1928. The Leavey School of Business opened in 1926, and within a decade, became one of the first business schools in the country to receive national accreditation.

For 110 years, Santa Clara was an all-male school. In the fall of 1961, women were accepted as undergraduates, and Santa Clara became the first coeducational Catholic university in California. The decision resulted in an admissions explosion—from 1,500 students to more than 5,000. The size of the faculty tripled, and the University began the largest building program in school history, building eight residence halls, a student union, and an athletic stadium. In 1985, the University adopted "Santa Clara University" as its official name.

UNIVERSITY VISION, MISSION, AND FUNDAMENTAL VALUES

Santa Clara University has adopted three directional statements to describe the kind of university it aspires to become (Strategic Vision), its core purpose and the constituencies it serves (University Mission), and the beliefs that guide its actions (Fundamental Values).

Strategic Vision

Santa Clara University will educate citizens and leaders of competence, conscience, and compassion, and cultivate knowledge and faith to build a more humane, just, and sustainable world.

University Mission

The University pursues its vision by creating an academic community that educates the whole person within the Jesuit, Catholic tradition, making student learning our central focus, continuously improving our curriculum and co-curriculum, strengthening our scholarship and creative work, and serving the communities of which we are a part in Silicon Valley and around the world.

Student learning takes place at the undergraduate and graduate level in an educational environment that integrates rigorous inquiry and scholarship, creative imagination, reflective engagement with society, and a commitment to fashioning a more humane and just world.

As an academic community, we expand the boundaries of knowledge and insight through teaching, research, artistic expression, and other forms of scholarship. It is primarily through discovering, communicating, and applying knowledge that we exercise our institutional responsibility as a voice of reason and conscience in society.

We offer challenging academic programs and demonstrate a commitment to the development of:

- Undergraduate students who seek an education with a strong humanistic orientation in a primarily residential setting
- Graduate students, many of them working professionals in Silicon Valley, who seek advanced degree programs that prepare them to make significant contributions to their fields

In addition to these core programs, we also provide a variety of continuing education and professional development opportunities for non-matriculated students.

Fundamental Values

The University is committed to these core values, which guide us in carrying out our mission and realizing our vision:

Academic Excellence. We seek an uncompromising standard of excellence in teaching, learning, creativity, and scholarship within and across disciplines.

Search for Truth, Goodness, and Beauty. We prize scholarship and creative work that advance human understanding, improve teaching and learning, and add to the betterment of society by illuminating the most significant problems of the day and exploring the enduring mysteries of life. In this search, our commitment to academic freedom is unwavering.

Engaged Learning. We strive to integrate academic reflection and direct experience in the classroom and the community, especially to understand and improve the lives of those with the least education, power, and wealth.

Commitment to Students. As teachers and scholars, mentors and facilitators, we endeavor to educate the whole person. We nurture and challenge students—intellectually, spiritually, aesthetically, morally, socially, and physically—preparing them for leadership and service to the common good in their professional, civic, and personal lives.

Service to Others. We promote throughout the University a culture of service—service not only to those who study and work at Santa Clara but also to society in general and to its most disadvantaged members as we work with and for others to build a more humane, just, faith-filled, and sustainable world.

Community and Diversity. We cherish our diverse and inclusive community of students, faculty, staff, administrators, and alumni, a community that is enriched by people of different backgrounds, respectful of the dignity of all its members, enlivened by open communication, and caring and just toward others.

Jesuit Distinctiveness. We treasure our Jesuit heritage and tradition, which incorporates all of these core values. This tradition gives expression to our Jesuit educational mission and Catholic identity while also welcoming and respecting other religious and philosophical traditions, promoting the dialogue between faith and culture, and valuing opportunities to deepen religious beliefs.

ACADEMIC PROGRAMS

Santa Clara University offers undergraduate degrees leading to the bachelor of arts (B.A.), bachelor of science (B.S.), and bachelor of science in commerce. The College of Arts and Sciences offers the B.A. degree and the B.S. degree in 36 subject areas and includes the graduate program in pastoral ministries, through which it offers the master of arts (M.A.) degree in catechetics, pastoral liturgy, spirituality, and liturgical music. The Leavey School of Business offers the B.S. degree in commerce with majors in seven subject areas. The School of Engineering offers a B.S. degree with majors in seven subject areas. A variety of interdisciplinary and discipline-based minors are also offered for undergraduates.

The School of Law offers programs leading to the degrees of juris doctor (J.D.) and master of laws (LL.M.). J.D. students may earn certificates of specialization in high technology law, international law, and public interest and social justice law. A broad curriculum also includes business and commercial law, taxation, criminal law and trial advocacy, environmental law, estate planning, labor law, health law, legal writing and research, as well as opportunities for externships, clinical work, and professional skill development.

The Leavey School of Business offers graduate programs leading to the master of business administration (MBA) degree with coursework in accounting, economics, finance, management, marketing, and operations management and information systems (OMIS). The executive MBA program is an intensive 17-month program designed for seasoned professionals. The business school also offers graduate programs leading to the master of science in information systems (MSIS), entrepreneurship, or finance. In conjunction with the law school, the business school also offers joint degree programs leading to a J.D./MBA and J.D./MSIS.

The School of Engineering offers graduate programs leading to the master of science (M.S.) degree in applied mathematics, bioengineering, civil engineering, computer science and engineering, electrical engineering, engineering management, mechanical engineering, software engineering, and sustainable energy; and the engineer's degree in computer science and engineering, electrical engineering, and mechanical engineering. The engineering school also offers the doctor of philosophy (Ph.D.) degree in computer science and engineering, electrical engineering, and mechanical engineering.

The two departments in the School of Education and Counseling Psychology offer credential and graduate programs. The Department of Education focuses on preparing teachers and administrators for public and Catholic schools. It offers programs in teacher preparation leading to credentials (i.e., California preliminary multiple-subject and single-subject teaching credentials, and California Clear credential) and the master of arts in teaching (MAT) degree. Its programs in educational administration prepare public K–12 administrators (i.e., the Preliminary California Administrative Services credential and the California Clear Administrative Services credential), and Catholic school leaders through the certificate program in Catholic School Leadership. The department also offers a M.A. program in interdisciplinary education (with emphases in curriculum and instruction; science, technology, environmental education, and mathematics (STEEM); and educational administration. The departments of Education and Counseling Psychology jointly offer the certificate program in Alternative and Correctional Education. The Department of Counseling Psychology offers two degree programs: M.A. in counseling psychology and M.A. in counseling. The M.A. in counseling psychology can lead to state licensure for marriage and family therapists and/or licensed professional clinical counselors. The department includes emphasis programs in health, correctional, and Latino counseling.

The Jesuit School of Theology (JST) is one of only two Jesuit theological centers in the United States operated by the Society of Jesus, as the order of Catholic priests is known. It is one of only two Jesuit theological centers in the country that offer three ecclesiastical degrees certified by the Vatican Congregation for Catholic Education, and it also offers four advanced theological degrees certified by the Association of Theological Schools. In addition, JST offers a spiritual renewal program for clergy, religious, and lay people, and conducts an annual Instituto Hispano that offers a certificate program to advance Hispanic leadership in the pastoral life of the church.

CENTERS OF DISTINCTION

Santa Clara University has three Centers of Distinction that serve as major points of interaction between the University and local and global communities. Each center focuses on a theme that is central to Santa Clara's distinctive mission as a Jesuit university and offers an educational environment integrating rigorous inquiry and scholarship, creative imagination, reflective engagement with society, and a commitment to fashioning a more humane and just world. Each center engages faculty and students from different disciplines as well as experts and leaders from the community through speakers, conferences, workshops, and experiential learning opportunities.

Miller Center for Social Entrepreneurship

The mission of the Miller Center for Social Entrepreneurship is to accelerate global, innovation-based entrepreneurship in service to humanity. Through an array of programs including its signature Global Social Benefit Incubator (GSBI™), the Center engages an international network of social enterprises, investment capital, and technical resources to build the capacity of the global social entrepreneurship movement. As a Center of Distinction at Santa Clara University, the Center leverages its programs to inspire faculty and students with real-world case studies, distinctive curricula, and unique research opportunities, advancing the University's vision of creating a more just, humane, and sustainable world. More information can be found at www.scu-social-entrepreneurship.org.

Ignatian Center for Jesuit Education

The Ignatian Center for Jesuit Education promotes and enhances the distinctively Jesuit, Catholic tradition of education at Santa Clara University, with a view toward serving students, faculty, staff, and through them the larger community, both local and global. The Ignatian Center achieves this mission chiefly through four signature programs:

- **Bannan Institutes** provide yearlong thematic programs including academic events and scholarly activities that further the Jesuit, Catholic character of the University.
- **Community-based learning** places over 1,200 students each year with community partners, frequently in connection with an academic course.
- **Immersion programs** offer students, during academic breaks, the opportunity to experience local, domestic, and international communities with little access to wealth, power, and privilege.
- **Spiritual Exercises of St. Ignatius** provide opportunities for members of the community to encounter the spiritual sources of the Jesuit tradition.

Through these four programs, the Ignatian Center aspires to be recognized throughout Silicon Valley and beyond as providing leadership for the integration of faith, justice, and the intellectual life.

Markkula Center for Applied Ethics

The Markkula Center for Applied Ethics is one of the preeminent centers for research and dialogue on ethical issues in critical areas of American life. The center works with faculty, staff, students, community leaders, and the public to address ethical issues more effectively in teaching, research, and action. The center's focus areas are business, health care and biotechnology, character education, government, global leadership, technology, and emerging issues in ethics. Articles, cases, briefings, and dialogue in all fields of applied ethics are available through the center.

FACULTY

Santa Clara University's emphasis on a community of scholars and integrated education attracts faculty members who are as committed to students' intellectual and moral development as they are to pursuing their own scholarship. The University's 530 full-time faculty members include Fulbright professors, nationally recognized authors, groundbreaking scientists, and distinguished economic theorists.

STUDENT BODY

Santa Clara University has a student population of 9,015, with 5,486 undergraduate students and 3,529 graduate students. The undergraduate population has a male-to-female ratio of 50-to-50, and about 45 percent of undergraduate students identify themselves as persons of color. About 62 percent of undergraduates are from California, with the others coming from throughout the United States and 44 countries. Seventy-four percent of undergraduate students receive some kind of financial aid—scholarships, grants, or loans.

More than half (53%) of the undergraduate population live in University housing, with 90 percent of first-year students and 70 percent of sophomores living on campus. Students experience an average class size of 23, with 42 percent of classes having fewer than 20 students and only 1.6 percent of classes having 50 or more students. The student-to-faculty ratio is 12.16-to-1.

The University's commitment to learning is expressed in the fact that 96.2 percent of first-year students advance to the sophomore year, and the percentage of Santa Clara students who graduate is among the highest in the country. The four-year graduation rate for entering first-year students is 78 percent, with a five-year graduation rate of 84 percent and a six-year graduation rate of 85.2 percent.

ALUMNI

Santa Clara University has over 94,000 alumni living in all 50 states and almost 100 countries. More than half of the alumni live in the San Francisco Bay Area, where many are leaders in business, law, engineering, academia, and public service.

CAMPUS

The University is located on a 106-acre campus in the city of Santa Clara near the southern end of the San Francisco Bay in one of the world's greatest cultural centers. More than 50 buildings on campus house 15 student residences, a main library, a law library, two student centers, the de Saisset Museum, extensive performing arts and athletic facilities, and a recreation and fitness center.

Santa Clara's campus has the advantage of being located in Silicon Valley—a region known for its extraordinary visionaries, who have designed and created some of the most significant scientific and technological advances of our age. Silicon Valley is more than a location -- it is a mindset, and home to more than 2 million residents and 6,600 science- and technology-related companies (not including San Francisco, which is located just an hour away).

Santa Clara's campus is well known for its beauty and mission-style architecture. Newly opened in 2013, the brick-paved Abby Sobrato Mall leads visitors from the University's main entrance to the heart of campus—the **Mission Santa Clara de Asís**. The roses and palm and olive trees of the **Mission Gardens** surround the historic Mission Church, which was restored in 1928. The adjacent **Adobe Lodge** is the oldest building on campus. In 1981, it was restored to its 1822 decor.

Academic Facilities

Amidst all this beauty and history are modern, world-class academic facilities. Students study and thrive in places such as the **Joanne E. Harrington Learning Commons**, **Sobrato Family Technology Center**, and **Orradre Library** where individuals and groups can study in an inviting, light-filled, and open environment. Notably, the library features an Automated Retrieval System, a high-density storage area where up to 900,000 books and other publications can be stored and retrieved using robotic-assisted technology.

Another example of Santa Clara's excellent academic facilities is **Lucas Hall**, home of the Leavey School of Business. This modern 85,000-square-foot building houses classrooms, meeting rooms, offices, study spaces, and a café. Classrooms are equipped with state-of-the-art videoconferencing equipment as well as a multi-platform system to record faculty lectures for later review by students. **Vari Hall** (formerly Arts & Sciences), adjacent to Lucas Hall, is home to the Markkula Center for Applied Ethics as well as academic departments,

classrooms, and a 2,200-square-foot digital television studio, regarded as among the best studios found on any campus nationwide.

Located near Vari Hall (formerly Arts & Sciences) is the **Schott Admission and Enrollment Services Building**, a welcome center for campus visitors and home to several University departments. Opened in 2012, the lobby of this green-certified structure includes technology-infused exhibits that illustrate Santa Clara's Jesuit mission. Among other green features on campus are two solar-powered homes built in 2007 and 2009 for the U.S. Department of Energy's Solar Decathlon. Both homes now serve as laboratories for solar and sustainability technologies.

Student Life

Santa Clara has 10 on-campus residence halls, most with traditional double rooms and large common bathrooms; others with suite arrangements conducive to more informal living. Juniors and seniors can apply for townhouse-style living in the 138-unit **University Villas** across from the main campus. Opened in 2012, **Graham Hall** is Santa Clara's newest residence hall. The environmentally friendly building boasts 96 mini-suites, lounges, full kitchens, and laundry facilities for every eight-room "neighborhood." In addition, the residence hall has two classrooms, a small theater, outdoor barbecue and picnic areas, and a large courtyard.

The **Robert F. Benson Memorial Center** serves as a hub for campus life. The Benson Center offers dining services and houses the campus bookstore, the campus post office, and meeting rooms. The University's main dining hall, The Marketplace, resembles an upscale food court with numerous stations and options. For a more informal experience, The Bronco is the Benson Center's late-night venue, serving beverages and pub-style food.

Another hot-spot for student life, the **Paul L. Locatelli, S.J., Student Activity Center**, includes a 6,000 square-foot gathering hall with a high ceiling that can accommodate dances and concerts as well as pre- and postgame activities. Designed with environmental sensitivity, the building is energy efficient and has daytime lighting controls and motion sensors to maximize use of natural light. For fitness-minded students, the **Pat Malley Fitness and Recreation Center** features a 9,500-square-foot weight training and cardiovascular exercise room, three basketball courts, a swimming pool, and other facilities to support the recreational and fitness needs of the campus community.

The campus includes many locations for quiet reflection such as the **St. Clare Garden**, which features plants and flowers arranged into five groups to portray the stages of the saint's life. For campus members who want a more hands-on relationship with nature, the **Forge Garden**, SCU's half-acre organic garden, serves as a campus space for course research, service learning, and sustainable food production.

Athletics and the Arts

The importance of athletics to the University is evident everywhere on campus. Among the newest additions to Santa Clara's athletics facilities are the **Stephen Schott Stadium**, home field for the men's baseball team, and the state-of-the-art **Stevens Soccer Training Center** funded by a gift from Mary and Mark Stevens. The gift from the Stevenses will also allow Santa Clara to upgrade the stands in **Stevens Stadium** (formerly Buck Shaw Stadium), home to the men's and women's soccer programs, and build a plaza that will celebrate Bronco sports—its past, present, and future. The plaza will celebrate the history of Santa Clara University football as well as the legacy and future of men's and women's soccer at SCU. **Bellomy Field**, eight acres of well-lit, grassy playing fields, provides space for club and intramural sports such as rugby and field hockey. Adjacent to Bellomy Field is the

well-appointed women's softball field, which opened in 2013. The **Leavey Event Center** houses the University's premier basketball facility. Over the years, the Leavey Event Center has hosted nine West Coast Conference Basketball Championships.

The University recognizes the arts as an equally important part of life at Santa Clara University. The new **Edward M. Dowd Art and Art History Building** (scheduled to open in 2016) will house an integrated fine arts program that will be a destination and a center for inspiration, innovation, and engagement in the arts and art history in Silicon Valley. The **de Saisset Museum**, the University's accredited museum of art and history, presents changing art exhibitions throughout the year and serves as the caretaker of the University's California History Collection, which includes artifacts from the Native American, Mission, and early Santa Clara College periods.

SCU Presents represents the University's commitment to the performing arts on campus, which include performances at venues such as the **Louis B. Mayer Theatre**, the **Fess Parker Studio Theatre**, and the **Music Recital Hall**. The Mayer Theatre is Santa Clara University's premier theatrical venue, housing 500 intimate seats in either a flexible proscenium or thrust-stage setting. The Fess Parker Studio Theatre has no fixed stage or seating. Its black-box design, complete with movable catwalks, provides flexibility in an experimental setting. The 250-seat Music Recital Hall provides a contemporary setting where students, faculty, and guest artists offer a variety of performances.

2

Transformative Experiences and Learning Resources

Santa Clara University is committed to the education of the whole person in the Jesuit and Catholic tradition with a vision of developing men and women to be leaders of competence, conscience, and compassion. The undergraduate program is designed for students who seek an education that integrates Jesuit values and learning that prepares them for 21st century challenges in a primarily residential setting. Varied educational experiences encourage students to value differing ways of knowing and being in the world, different forms of knowledge within established disciplines, and new knowledge as well as that which preceded it.

Santa Clara's concept of the "whole person" inevitably embraces our social nature. When he inaugurated Santa Clara's sesquicentennial year in 2000, Father Peter-Hans Kolvenbach, then superior general of the Society of Jesus, noted that "Tomorrow's 'whole person' cannot be whole without an educated awareness of society and culture with which to contribute socially, generously, in the real world." Affirming that the Jesuit educational standard must always "educate the whole person of solidarity for the real world," he explained: "Students, in the course of their formation, must let the gritty reality of this world into their lives, so they can learn to feel it, think about it critically, respond to its suffering, and engage in it constructively. They should learn to perceive, think, judge, choose, and act for the rights of others, especially the disadvantaged and the oppressed." Since then, Santa Clara University has revised the Core Curriculum, begun implementing a new strategic plan, extended the impact of its Centers of Excellence, and enhanced the University's co-curricular programs, all with the goal of educating students who will apply what they are learning to constructive engagement with the gritty realities of the 21st century.

The Santa Clara undergraduate program offers courses and other learning experiences whose content and patterns combine the acquisition and creation of knowledge with the quest for meaning and purpose. Santa Clara's learning environments encourage students to make connections across the Core Curriculum, the academic major, elective courses, and co-curricular experiences. Students are encouraged to relate their classroom learning with out-of-classroom learning through community-based education, Residential Learning Communities, Campus Ministry, a wide variety of student organizations, athletics and recreation, and other experiences. In a more general way, the undergraduate program nurtures students' ability to knit the intellectual, social, moral, spiritual, creative, and behavioral aspects of life into a coherent and meaningful whole.

THE CORE CURRICULUM

A university expresses its most basic values in its Core Curriculum that is part of an undergraduate education required of all students. Santa Clara's Core Curriculum explicitly integrates three traditions of higher education. As a Catholic university, it is rooted in the tradition of pursuing an understanding of God through the free exercise of reason. As a Jesuit university, it promotes a humanistic education that leads toward an ethical engagement with the world. As a comprehensive American university committed to liberal education, Santa Clara seeks to prepare its students for intelligent, responsible, and creative citizenship. Reflecting these traditions, the Core Curriculum provides every undergraduate with the common learning that all students need to become leaders of competence, conscience, and compassion.

The distinctiveness of a Santa Clara education emerges in the Core Curriculum, both in its sense of purpose rooted in the University's traditions and in its commitment to a breadth of learning for the 21st century that complements and supports all majors. The Core Curriculum opens students to the study and practice of the arts, humanities, mathematics, technology, natural sciences, and social sciences. It educates students for interdisciplinary understanding and ethically informed participation in civic life.

Opportunities for experiential learning foster the development of compassion and attention to the ways human suffering can be alleviated. Reflecting the University's founding mission, the Core Curriculum includes a disciplined and critical reflection on the religious dimensions of human existence. In addition, because the Core Curriculum continually highlights the critical and compelling questions facing individuals and communities, the Core Curriculum supports students both in making professional career choices and in discerning their larger vocation—their life's purpose in the world.

Learning Goals: What will students learn in the Core Curriculum?

Because a liberal education in the Jesuit tradition is oriented toward particular ends, the Core Curriculum affirms a set of central learning goals. These goals are divided among three broad categories—Knowledge, Habits of Mind and Heart, and Engagement with the World.

Knowledge

To be prepared for well-informed engagement in society, students must comprehend the forces that have shaped the world they have inherited and the ways the world is interpreted and understood. They must also understand how they might transform the world for the better. The Core Curriculum deepens students' knowledge of the ideas and ways of knowing that emerge from the arts, humanities, and natural and social sciences.

Global Cultures: The intertwined development of global ideas, institutions, religions, and cultures, including Western cultures

Arts and Humanities: The production, interpretation, and social influence of the fine and performing arts, history, languages, literatures, philosophy, and religion

Scientific Inquiry: The principles of scientific inquiry and how they are applied in the natural and social sciences

Science and Technology: The formative influences, dynamics, social impacts, and ethical consequences of scientific and technological development

Diversity: Diverse human experiences, identities, and cultures within local and global societies, especially as formed by relations of power and privilege

Civic Life: The roles, rights, and responsibilities of citizens and institutions in societies and in the world

Habits of Mind and Heart

To contribute to a rapidly changing, complex, and interdependent world, students must develop ways of thinking, feeling, and acting that allow them to educate themselves for the rest of their lives with passion and purpose. By attending to the cognitive and affective dimensions of human experience, the Core Curriculum enables students to think more deeply, imagine more freely, and communicate more clearly.

Critical Thinking: The ability to identify, reflect upon, evaluate, integrate, and apply different types of information and knowledge to form independent judgments

Mathematics and Quantitative Reasoning: Analytical and logical thinking and the habit of drawing conclusions based on quantitative information

Complexity: An approach to understanding the world that appreciates ambiguity and nuance as well as clarity and precision

Ethical Reasoning: Drawing on ethical traditions to assess the consequences of individual and institutional decisions

Religious Reflection: Questioning and clarifying beliefs through critical inquiry into faith and the religious dimensions of human existence

Communication: Interacting effectively with different audiences, especially through writing, speech, and a second language

Engagement with the World

To engage with the world in meaningful ways, students need opportunities to explore and refine self-knowledge in relation to others. The Core Curriculum enhances students' understanding of the integrity of their own lives and the dignity inherent in the lives of others, especially the impoverished, suffering, and marginalized.

Perspective: Seeking out the experience of different cultures and people, striving to view the world through their eyes

Collaboration: The capacity to collaborate intellectually and creatively with diverse people

Social Justice: Developing a disciplined sensibility toward the causes of human suffering and misery, and a sense of responsibility for addressing them

Civic Engagement: Addressing major contemporary social issues, including environmental sustainability and peaceful resolution of conflict, by participating actively as an informed citizen of society and the world

Each course in the Core Curriculum addresses at least three of the learning goals listed above. Students have multiple opportunities to encounter, practice, and master each learning goal. In addition, specific learning objectives for each area of the Core Curriculum have been developed by faculty Core Curriculum committees. These learning objectives are associated with particular learning goals and describe the knowledge, skills, and values students will be able to demonstrate after completing the courses in the Core Curriculum.

The learning objectives are posted on the Core Curriculum website and published annually in the *Core Curriculum Guide*.

The structure of the Core features two phases of coursework designed to foster developmental learning and curricular coherence. The first phase, ***Foundations***, consists of six to nine courses normally taken in the first year, introducing students to the processes and expectations for university-level education:

- Critical Thinking & Writing 1 and 2
- Cultures & Ideas 1 and 2
- Second Language (level required varies by major)
- Mathematics (one course selected from a variety of choices)
- Religion, Theology & Culture 1

This phase helps students begin to set their own goals for learning, preparing them to make thoughtful choices in the Core Curriculum, their majors, and co-curricular activities.

The second phase, ***Explorations***, offers students the opportunity to choose among courses that will expand and deepen their understanding of a broad range of subject areas needed for effective participation in contemporary life. The 10 Explorations requirements—Ethics; Civic Engagement; Diversity: U.S. Perspectives; Arts; Social Science; Natural Science; Science, Technology & Society; Cultures & Ideas 3; Religion, Theology & Culture 2; and Religion, Theology & Culture 3—include many courses that also satisfy requirements in students' majors.

Students in Arts and Sciences and Business satisfy their Core Foundation and Exploration requirements with one course per Core area. Engineering students may satisfy more than one Core requirement with one course when the course has been approved for those Core areas.

The ***Integrations*** requirements—Experiential Learning for Social Justice, Advanced Writing, and Pathways—often are components embedded in other courses rather than additional courses. Pathways foster integrative, intentional learning, complement the majors, and encourage the application of knowledge to real problems in the world. Students select one of 24 different Pathways before they attain junior status. Pathways allow students to integrate their learning across at least two different disciplines by choosing one of the following from a wide range of themes: American studies; applied ethics; beauty; children, family, and society; cinema studies; democracy; design thinking; the digital age; food, hunger, poverty, and the environment; gender, globalization, and empire; gender, sexuality, and the body; global health; human rights in a global world; Islamic studies; justice and the arts; law and social justice; leading people, organizations, and social change; paradigm shifts; politics and religion; public policy; race, place, and social inequalities; sustainability; values in science and technology; and vocation. Students in the College of Arts and Sciences and Leavey School of Business must complete four Pathway courses; students in the School of Engineering must complete three Pathway courses. Beyond the coursework, all students must earn a passing grade on a Pathway reflection essay.

Student progress through the structure of the Core Curriculum is not strictly sequential, from ***Foundations*** through ***Explorations*** to ***Integrations***. While some courses (e.g., Critical Thinking & Writing 1 and 2; Cultures & Ideas 1, 2, and 3; and Religion, Theology & Culture 1, 2, and 3) must be taken in sequence, all students have the opportunity to discover other sequences that are best for their individual undergraduate experience. At the same time, all students engage in coursework designed to help them achieve the shared set of learning objectives for each component of the Core Curriculum. Furthermore, the

Experiential Learning for Social Justice, Advanced Writing, and Pathways components of the Core Curriculum help students experience requirements not only as individual courses but as related educational activities that help structure and integrate their entire experience of university study.

The *Core Curriculum Guide* provides more detailed information about each component of the Core Curriculum, the learning goals and objectives associated with each component, and the courses from which students may choose. An online version is available at www.scu.edu/core. Students are encouraged to check their degree audit in eCampus regularly to determine their progress in the Core Curriculum and their other academic requirements.

The Core Curriculum and the College of Arts and Sciences

Students in the College of Arts and Sciences should consult Chapter 3 for the requirements for their majors. There are no additional college-wide requirements beyond the requirements for the Undergraduate Core Curriculum.

The Core Curriculum and the Leavey School of Business

Leavey School of Business requirements determine how students in the business school satisfy some Undergraduate Core Curriculum requirements—some Core Curriculum requirements must be fulfilled with specific courses. Students in the Leavey School of Business should consult Chapter 4 for the complete list of requirements for the majors and the school. The *Core Curriculum Guide* provides additional information.

The Core Curriculum and the School of Engineering

Students in the School of Engineering satisfy their mathematics and natural science requirement with courses required by their majors; their second language requirement is met by Santa Clara's entrance requirements. Some sections of Core courses in Social Science, Diversity, Cultures & Ideas 3, and Religion, Theology & Culture 2 and 3 will allow engineering students to satisfy two requirements with one course, with the understanding that other coursework for their majors will complete the acquisition of knowledge and skills required in the Core. Engineering students will complete their Pathways with three courses.

Transfer Credit and the Core Curriculum

Transfer credit earned from courses completed after initial enrollment at Santa Clara may not be used to fulfill Core Curriculum or other requirements.

Transfer credit earned from courses completed before enrollment at Santa Clara are governed by two sets of rules, one for students admitted as first-year students and another for transfer students. All students must satisfy the following Core requirements at Santa Clara University: Civic Engagement; Science, Technology & Society; a minimum of two Religion, Theology & Culture courses; Advanced Writing; Experiential Learning for Social Justice; and Pathways.

Students admitted as first-year students must also satisfy Critical Thinking & Writing and Cultures & Ideas 1 and 2 with courses completed at Santa Clara University. In contrast, students admitted as transfers are encouraged to complete Critical Thinking & Writing and Cultures & Ideas 1 and 2 before their first quarter at Santa Clara. For transfer students only, transfer credit for Critical Thinking & Writing may include exemptions granted at other schools and credit granted through Advanced Placement and International Baccalaureate test scores. Information about possible substitutions for Critical Thinking & Writing and Cultures & Ideas courses is available in the Registrar's Office.

Transfer students who enter the University with fewer than 44 units must take all three Religion, Theology & Culture courses in the required sequence. Students matriculating with 44 or more units of transferable college credit, which does not include any Advanced Placement or International Baccalaureate test credit, complete two courses from any two of the following three categories, in any order: Religion, Theology & Culture 1, 2, or 3. However, all students except Religious Studies majors and minors must complete 88 units before enrolling in Religion, Theology & Culture 3 courses.

Transfer students must declare their Pathways by the end of their third quarter at SCU. Transfer students in the College of Arts and Sciences and Leavey School of Business who matriculate with fewer than 44 units must take four courses to fulfill the Pathways requirement. Transfer students in the College of Arts and Sciences and Leavey School of Business who matriculate with more than 44 units must take three courses to fulfill the Pathways requirement. All transfer students in the School of Engineering must take three courses to fulfill the Pathways requirement. More detailed Pathway guidelines are available at www.scu.edu/Pathways.

Students who transfer to Santa Clara University should consult Chapters 7 and 8 as well as the chapters relevant to their school or college.

THE RESIDENTIAL EXPERIENCE

The undergraduate residence halls at Santa Clara University are home to eight Residential Learning Communities established to foster integrated education within a community of scholars. By creating a culture in which students connect their academic experiences with their social and residential ones, the learning communities enhance the education of the whole person and deepen the connection between learning and living as responsible members of a community.

All entering first-year students, whether or not they live on campus, become members of one of eight theme-based Residential Learning Communities. Nonresident first-year students are given access to the residence hall in which their learning community is located so that they can participate fully in its programs. In the theme-based learning communities, resident directors and faculty directors coordinate the efforts of resident ministers and student staff to encourage high academic achievement, effective community living, and individual development.

Students take at least one Core Foundations sequence in common with others in their learning community, enriching coursework and promoting the formation of study groups. Students also interact directly with faculty and staff and participate in theme-based co-curricular and extracurricular activities both on and off campus. Residential Learning Communities are primarily two-year communities, but some offer the opportunity for students to remain throughout their undergraduate careers.

University residence halls accommodate more than half of the undergraduate population in coeducational communities with common lounge areas, study rooms, kitchen and laundry facilities, and other services. Most residence halls offer traditional double-occupancy rooms with common bath facilities; some halls offer suites and apartment-style accommodations with bathrooms en suite. All residence hall rooms and suites are equipped with a cable television connections, Ethernet, and wireless network service.

CAMPUS MINISTRY

Campus Ministry is comprised of people who are committed to spiritual and personal growth. Its mission is to foster the spiritual life of our students.

- In support of the University's mission to "development of the whole person," Campus Ministry offers a variety of programs and pastoral presence to support that development, particularly the spiritual and personal aspects.
- Campus Ministry provides a welcoming environment where faith may be explored, discovered, and developed; a place where there is always someone to talk to about anything; and a place where people meet for small groups, prayer, reflection, and learning.
- More than 400 students attend weekly worship, and even more students are involved in Campus Ministry programs. In addition to eight full-time campus ministers, there are also resident ministers living in residence halls on campus.

What does Campus Ministry have to offer?

- **Worship**: Three Sunday liturgies in the Mission Church, daily noon Mass in the Mission, University celebrations, prayer services, and ecumenical (Christian) and interfaith services throughout the year.
- **Leadership opportunities**: Campus Ministry offers paid internships in the areas of Christian diversity, communications, faith formation, graduate students, interfaith ministry, liturgy, prayer, and retreats. The internships encourage students to develop their interest and skills in ministry.
- **Retreats**: Santa Clara students are offered a number of retreat experiences over the course of the academic year. Offerings include a silent retreat, Search retreats, an Ignatian retreat, and retreats for first-year students and seniors. Retreats are offered to persons of all faiths.
- **Reflection groups**: Campus Ministry runs the Christian Life Community program, which places students in small groups for weekly prayer and reflection. It also oversees Interfaith dinner discussions, weekly Bible study, and RLC small groups.
- **Faith formation**: Campus Ministry offers several opportunities for students to learn, reflect, and grow in regard to their faith through Scripture reflection, forums and presentations, and Sacraments of Initiation.
- **Social justice awareness and action**: Campus Ministry provides students with a variety of opportunities to respond to the Gospel call to actively live out a faith that does justice. Some key focus areas include participation in the annual Ignatian Family Teach-in for Justice; simple meals, action, education, and reflection about current events.

Is Campus Ministry for everyone?

Yes! We welcome the participation of anyone interested in spiritual and personal growth, regardless of faith tradition. This is a time for learning about yourself and our world, and we hope we can accompany you in that exploration.

GLOBAL ENGAGEMENT

The University Strategic plan has prioritized global engagement and understanding. As a result there are a number of programs throughout the university that offer students the opportunity to engage with the world as part of their academic program. The Global Engagement Office (GEO) provides leadership, coordination, strategic planning, and resources for the internationalization of the campus. GEO offers programs and services that enhance global learning at Santa Clara University, which includes the two largest global programs at the University: the SCU Study Abroad program, and the International Students & Scholars (ISS) program. In addition to these programs, GEO provides information on diverse international programs throughout the University.

The ISS program supports the education and development of undergraduate and graduate international students to enable them to achieve excellence in their academic and professional goals. In addition, ISS promotes the understanding of diverse cultures and perspectives throughout the University and provides support to international students of all kinds. ISS also manages the F-1 and J-1 visa programs and provides support to students on visa-related matters.

SCU STUDY ABROAD

As part of the SCU Study Abroad program, undergraduate students may apply to over 150 approved programs in over 60 locations with opportunities to study during fall, winter, spring, and summer. Courses completed in approved SCU Study Abroad programs count toward elective credit requirements for graduation and may fulfill major, minor, and Core requirements with the prior approval from the department or the Core director. SCU Study Abroad values diversity and inclusion and strongly encourages students from all backgrounds to apply for study abroad. For more information on the SCU Study Abroad program, see Chapter 6.

CAREER CENTER

The Career Center provides students with a variety of services and resources to encourage self-discovery, provide a meaningful vocational journey, and educate for the continuous process of career and life development. Students explore their majors and career choices with counselors to reflect on attributes such as personality, skills, interests, and values, and learn to represent those attributes effectively on resumes, in cover letters, during interviews, and throughout the life of their careers. The Career Center offers a variety of programs and services each year, including career fairs, employer information sessions, classes and workshops on career strategies, resume writing and interview webinars, internship workshops, mock interviews, and appointments with career counselors. A critical piece of educating for life is on- and off-campus student employment positions, internships, cooperative education placements, and volunteer opportunities. Positions are posted through the Career Center's BroncoLink online job listing and are accessible to students via eCampus. The Career Center also disseminates information through its Web presence including Facebook, BroncoLink, and LinkedIn. For undergraduate students interested in pursuing graduate study, the Career Center offers a *Resource Guide to Graduate School* on its website.

CAMPUS RECREATION

Campus Recreation is committed to the Jesuit ideal of developing the whole person through a broad range of recreational, educational, and competitive opportunities that seek to enrich the lives of students, faculty, and staff. Informal recreation opportunities include drop-in use of the weight and cardiovascular equipment and gymnasium in the Pat Malley Fitness and Recreation Center, lap swimming in the Sullivan Aquatic Center, playing tennis at the Degheri Tennis Center, and throwing a football on Bellomy Field. Noncredit lifetime recreation fitness classes are also provided for an additional fee to all members. There are three options to take classes: a daily drop-in, a nine-class punch card, or an unlimited pass. During the first week of the quarter, all classes are free; beginning the second week, a pass is needed to attend the nine weeks of classes. There are over 30 classes available per week. Classes include yoga, Pilates, kickboxing, cycling, step aerobics, and many more. Organized intramural sports leagues provide competitive opportunities in flag football, tennis, volleyball, badminton, basketball, soccer, table tennis, and softball against fellow current Santa Clara students, faculty, and staff. The 18 competitive club sports, open only to students, represent Santa Clara against teams from other colleges and universities. Current club sports include boxing, cycling, equestrian, men's ice hockey, men's and women's lacrosse, men's and women's rugby, men's and women's ultimate Frisbee, men's and women's club volleyball, paintball, sailing, Shotokan karate, swimming, triathlon, and women's field hockey.

INTERCOLLEGIATE ATHLETICS

Santa Clara University supports a broad intercollegiate athletic program and is a member of Division I of the National Collegiate Athletic Association (NCAA) and a founding member of the West Coast Conference (WCC). With 19 intercollegiate sports, the Broncos field teams in men's and women's basketball, crew, cross country, golf, soccer, track and water polo, men's baseball, women's softball and women's volleyball.

As a program, Santa Clara has won 59 WCC titles across eight sports and has been to the NCAA tournament 92 times with a total of 18 Final Four appearances.

The men's and women's soccer teams are perennially among the nation's elite programs, both having won national championships. Men's soccer took home its national title in 1989 when current head coach, Cam Rast, was a star on the team. Jerry Smith has led the women's soccer team for over 28 years and has taken the team to 24 NCAA tournaments and 10 Final Fours. In 2001, Smith led the Broncos all the way to the program's national title.

Women's volleyball has also emerged in recent years as one of the nation's top programs. In 2005, the Broncos volleyball team made an incredible run to the Final Four under current head coach, John Wallace.

Men's basketball has also had much success on the court. The team went to the final four in 1952 and was home to former National Basketball Association (NBA) star, Kurt Rambis, and current NBA player and two-time Most Valuable Player (MVP) winner, Steve Nash. As a first-year student, Nash led Santa Clara back to the NCAA tournament for the first time in five years and an upset of second-seeded Arizona. In all, Santa Clara went to the tournament three times in Nash's four years on the Mission campus.

In 2011, Santa Clara men's basketball returned to the postseason for the first time since Nash graduated and took part in the CollegeInsider.com Tournament. The Broncos, led by the nation's top three-point shooter, Kevin Foster, went all the way to collect the tournament title. The team then captured the College Basketball Invitational postseason tournament in 2013.

The women's basketball team has had success in the postseason as well, bringing home the 1991 Women's National Invitation Tournament (WNIT) championship.

Not to be outdone, Bronco baseball has had tremendous success with the high point coming in 1962 when the team went all the way to Omaha and the College World Series title game. The team featured eight future major league players, including three who went straight from Santa Clara to the big leagues. In 2014, the Broncos advanced to the WCC tournament, which was the first post-season appearance since 1997.

One of the most famous Santa Clara baseball players, Randy Winn, started as Steve Nash's backup at point guard on the basketball team. Winn played 13 seasons in the major leagues including five for the San Francisco Giants.

With a long tradition of turning out professional baseball players, the Broncos have had over 158 players taken in the major league baseball draft.

The Broncos also have some of the best athletic facilities in the country including Stephen Schott Stadium that opened in 2005, the Sullivan Aquatic Center that opened in 2008, the Degheri Tennis Center that opened in 1999, and the Leavey Center that was renovated in 2002. New construction is underway at the softball stadium and the Stevens' Soccer Center.

Santa Clara is one of the WCC's top broad-based programs.

SCU PRESENTS

SCU Presents supports Santa Clara University students, faculty, and staff in the performing and visual arts by promoting the arts through a variety of programs, providing resources to academic departments, and serving the University and local community by providing a rich season of performance events. Performance events include a Visiting Artist series of national and international artists.

SCU Presents Arts for Social Justice is a collaborative and interdisciplinary initiative whose mission is to raise awareness about critical issues addressing the human condition through the creation and participation in a wide variety of art forms, both on and off campus, which fosters dialogue and action in the community.

SCU Presents also encourages and supports the creative expression of Silicon Valley artists by providing performance space for local arts organizations.

CENTER FOR STUDENT LEADERSHIP

The Center for Student Leadership (CSL) is dedicated to providing high-quality leadership education through leadership programs and student activities in an integrated academic environment. Working with faculty, students, staff, alumni, and the greater community, CSL will:

- Prepare students to be informed educated leaders in society who exhibit courage, character, and respect for others
- Provide students with opportunities to discover their potential and examine their personal values, opinions, and beliefs
- Encourage students to practice skills and competencies associated with effective leadership
- Advise student leaders and student organizations in group development organizational management, and program development
- Be an advocate for students' interests and celebrate their contributions to University life and the larger community

CSL enhances student potential and educates for leadership in the Jesuit tradition. The staff of scholar practitioners provides programs and services that embrace the values of social justice, citizenship, ethical decision making, service to others, and diversity.

CSL collaborates with faculty and staff throughout the University to deliver summer orientation programming introducing new students and their families to the campus community, especially their Residential Learning Communities, supporting advising and registration for fall classes, and engaging new students in discussions of community values and summer reading. Other programming throughout the academic year encourages students to take advantage of rich academic and co-curricular opportunities and supports new students as they adjust to the demands and responsibilities of University life.

CHARTERED STUDENT ORGANIZATIONS

The **Activities Programming Board** (**APB**) provides social events, programs, and leadership opportunities. Students may get involved with APB as a staff member or a volunteer to plan concerts, comedy shows, speaking events, movies, and recreational trips for the student body.

The **Associated Student Government of Santa Clara University** (**ASG**) is the undergraduate student government organization, which is divided into the executive, legislative, and judicial branches. Positions are available on the executive cabinet, student senate, student judicial board, and University committees.

Into the Wild provides students of all skill levels with opportunities to get off campus and explore California's wilderness. Every week, Into the Wild organizes trips that include hiking, backpacking, camping, rock climbing, kayaking, rafting, surfing, and more. Into the Wild also aims to promote environmentally sustainable practices.

KSCU is a student-run, non-commercial radio station at 103.3 FM. The program format features primarily independent music, including indie rock, punk, ska, jazz, blues, and reggae. Students may get involved with the radio station as a staff member or as a volunteer DJ, office assistant, fundraiser, or sound technician.

The **Multicultural Center** (**MCC**) provides programming and support for students of diverse ethnic backgrounds and for the campus community. The MCC is an umbrella organization for nine clubs, including the Asian Pacific Student Union (APSU), Japanese Student Association (JSA), Barkada, Chinese Student Association (CSA), Igwebuike, Intandesh, Ka Mana'o O Hawai'i, MEChA-El Frente, and the Vietnamese Student Association (VSA). Students may get involved with the MCC in a staff position and in volunteer opportunities as a board member, club leader, or center assistant.

The Redwood is the University's annual yearbook capturing the pictorial history of each academic year. Students may get involved with the yearbook through staff positions and volunteer roles in writing, design, photography, and management. Students at-large are encouraged to participate by contributing photos and writings.

The Santa Clara is the University's undergraduate weekly newspaper, serving as an informative and entertaining student-run campus publication. Students may get involved in a staff position or as a volunteer writer, photographer, or member of the business and advertising staff.

The **Santa Clara Community Action Program** (**SCCAP**) is a community-based, volunteer service organization that promotes social awareness, leadership for social justice, and compassion, and provides students with opportunities to apply their education to social service. Program opportunities fit into four categories: education and mentoring,

empowerment, health and disabilities, and homelessness. Students may get involved through staff leadership positions and volunteer opportunities.

The ***Santa Clara Review*** (***SCR***) is the University's biannual literary magazine and draws submissions from students, faculty, staff, and artists outside the University community. The *Review* is committed to the development of student literary talent in editorial knowledge and creative writing skills. Students may get involved with the magazine in several staff positions and with opportunities to volunteer in the areas of poetry, fiction, nonfiction, art, and management.

OFFICE FOR MULTICULTURAL LEARNING

The mission of the Office for Multicultural Learning is to coordinate, collaborate, and promote cross-campus programming and related initiatives for purposes of enhancing Santa Clara University's goals for diversity and inclusive excellence and providing a welcoming campus climate.

The Office for Multicultural Learning serves as a campus-wide resource for information about multicultural issues and diversity. It offers multicultural learning experiences that educate the campus to respect and honor differences, promote dialogue and interactions among individuals from different backgrounds, and support collaborative efforts between the University and the local community.

UNIVERSITY HONORS PROGRAM

The University Honors Program provides a learning experience appropriate to students of exceptional academic talent and imagination. The program offers small seminar-style classes, especially in courses fulfilling the Undergraduate Core Curriculum requirements. Admission to the University Honors Program is by invitation or application and considers the student's academic record, standardized test scores, recommendations, and any other information the student might provide about interests, goals, or experiences.

The program is organized as two distinct but related levels open to undergraduate students from arts and sciences, business, and engineering. Level I of the program accepts first-year students for a curriculum organized around courses that satisfy Undergraduate Core Curriculum requirements applying to students in every field. The University Honors Program requires that all participants maintain a cumulative grade point average (GPA) of 3.3 or higher, and Level I participants must successfully complete a minimum of six program courses within the first six quarters of enrollment. Most participants complete Level I during their first year. Unless exempted by the director, Level I participants must fulfill specific Foundations courses in the Core Curriculum—Critical Thinking & Writing; Cultures & Ideas; and Religion, Theology & Culture—through special class sections arranged by the program. Participants are also strongly urged to satisfy Core Curriculum requirements such as mathematics, ethics, social sciences, natural sciences, advanced writing, and advanced Religion, Theology & Culture with Honors Program sections.

Participants in Level I normally continue to Level II, in which they complete a minimum of four additional program courses including a senior thesis or project. Students who have completed 32 or more units but not more than 88 units at Santa Clara may apply to enter Level II by contacting the Honors Program Office. Students joining the program at Level II complete six program courses including the thesis or senior project. Some Level II courses, while not limited to program participants, offer academic opportunities especially suitable for them. For both continuing and new participants, the thesis usually grows out of

a regular or independent study course taken in conjunction with the participant's major, minor, or Pathway. Successful completion of the program at Level II becomes part of a student's permanent record and appears on academic transcripts issued by the University.

Honors Program students have the opportunity to participate in the Honors Advisory Council. The University Honors Program is allied with the Office of Student Fellowships, which helps prepare students to compete for nationally competitive graduate fellowships such as Rhodes, Marshall, Fulbright, Mitchell, Goldwater, Udall, Jack Kent Cooke, and Gates Cambridge. A competitive annual award permits one Honors Program student to spend his or her junior year at Mansfield College, Oxford University.

For information about courses offered through the University Honors Program, see Chapter 6.

LEAD SCHOLARS PROGRAM

The LEAD (Leadership, Excellence, and Academic Development) Scholars Program provides first-generation University students admitted to the program with a smooth transition to life at Santa Clara. The LEAD Scholars Program forms a community of undergraduate peers and faculty dedicated to rigorous academic achievement, student leadership, community engagement and service. The program involves support as well as challenge throughout the four years, with a special emphasis on the first-year experience. All LEAD scholars participate in LEAD Week, which is scheduled for the week immediately preceding the beginning of the fall term. Incoming first-year students take ENGL 1A and 2A together, and well as two LEAD Seminars, which focus on optimizing the transition to college. Transfer students take an upper-division seminar, which focuses on opportunities and challenges for transfer students. Other optional courses are also offered for the LEAD Scholars community, and students have access to a range of resources.

LEAD Scholars can also participate in the LEAD Council, a leadership group that provides programs, events, and other opportunities to serve the needs of the LEAD community. A range of social and academic programs are offered including alumni networking, community building events and outreach to families. For more information about courses offered by the LEAD Scholars Program, please refer to Chapter 6.

OFFICE OF FELLOWSHIPS

The Office of Fellowships at Santa Clara was established in 2005 to provide the central management and administrative responsibility for advising students about a wide variety of highly competitive external fellowships, scholarships, awards, and prizes requiring university nomination, endorsement, or review. The Office of Fellowships mentors and advises students about their academic, service, and volunteer work in pursuit of the more than 25 named fellowships for which Santa Clara students are eligible (Rhodes, Marshall, Fulbright, Madison, Truman, and Jack Kent Cooke, for example) as well as provides direct support for potential candidates in the application process.

The Office of Fellowships responds to two principles of Jesuit education. The first, *cura personalis*, personal care, reflects a deep respect for the individual and that person's potential. The second, *magis*, "striving for the more," calls on students to do their very best and always to strive for personal excellence. The Office of Fellowships will help intellectually gifted Santa Clara students to develop and to utilize their talents so that they have more to give to others.

PEER EDUCATOR PROGRAM

Created in 1997 as an experiment in enhancing student learning, the Peer Educator Program is designed to facilitate and enrich the learning supported by undergraduate instruction at Santa Clara University. Peer Educators are students who help a faculty member with the administration of a class. More specifically, the Peer Educator Program aims to

- Enhance and enrich the learning experiences of peer educators through close collaboration with a faculty member
- Enhance and enrich learning in undergraduate courses, especially lower-division university and school core courses
- Contribute to the residential learning community initiative to increase awareness of the close relationships between experiential and classroom learning and cultivate a frame of mind conducive to lifelong learning
- Support faculty initiatives to develop and implement pedagogies that further other goals of the program and of the university

DOMESTIC PUBLIC SECTOR STUDIES PROGRAMS

The Public Sector Studies Program at Santa Clara University offers an introduction to the areas traditionally known as public policy, public administration, public affairs, and urban planning. It is designed to provide a closer look at the creation, implementation, and analysis of public policies, and the operation of government, public, and nonprofit organizations. The program also provides an excellent foundation for those who would like to pursue graduate studies in public policy or public administration and an alternative perspective for students who wish to pursue public law.

Opportunities for Firsthand Study

Through the Public Sector Studies program in the Department of Political Science, students have the opportunity to participate in public sector internships, the Washington Semester Program, and the Panetta Institute's Congressional Internship program. These programs offer preparation and training for students interested in working at the city, county, state, or federal level of government, in a public agency or nonprofit organization, or considering graduate-level studies in related fields.

Internships

Perhaps the best way to understand is by doing—students participating in public sector internships not only observe what happens in the "real world," but they are able to take part as well, gaining invaluable experience and knowledge. Placements in public sector internships have included the San Jose mayor's and City Council members' offices, district offices of members of Congress and the California Legislature, government relations departments of high-tech corporations, public law offices including the Santa Clara county Public Defender and District Attorney, political campaigns, and nonprofit organizations. Many students end their internships with excellent employment prospects.

The Washington Semester Program

In the Washington Semester Program, students combine coursework taken at American University with hands-on experience via internships. In the past, SCU students have interned at the White House, the Justice Department, the FBI, interest groups, broadcast

news stations, various nonprofit organizations, and offices of members of the U.S. House of Representatives. The Washington Semester Program offers students the opportunity to live, study, and work in our nation's capital for one semester along with students from other U.S. states and from countries abroad. Numerous programs of study are available, including American Politics, Public Law, U.S. Foreign Policy, International Environment and Development, Economic Policy, Journalism, International Business and Trade, Peace and Conflict Resolution, and Contemporary Islam. Several programs include a three-week international travel component along with study in Washington. Students participating in the Washington Semester Program earn 22.5 to 24 quarter credits for one semester of study. Grades and units received at American University will count toward the student's SCU grade point average and course requirements for the department and the University when appropriate.

The Panetta Institute's Congressional Internship Program

The Leon and Sylvia Panetta Institute for Public Policy at California State University, Monterey Bay, founded by Santa Clara political science alumnus Leon Panetta, offers an opportunity for students to gain an inside look at the legislative branch of the U.S. federal government and Washington politics. This Congressional internship begins with a two-week course at California State University, Monterey Bay, where students work directly with seasoned veterans examining the legislative process and its functions. The remaining two-and-a-half months of the internship are spent in Washington, D.C., working on Capitol Hill in the office of a member of the California Congressional delegation. One exceptional Santa Clara University student is chosen each year for this fully subsidized internship.

Eligibility

To be eligible to participate in one of these Public Sector Studies Programs, students must have completed at least 88 quarter units of credit by the date that the program of study begins, must not be on academic or disciplinary probation, and must be in good financial standing with the University. Students must also meet grade point average and other eligibility requirements for the specific program.

For more information about the Public Sector Studies Program, visit the Public Sector Studies Program at www.scu.edu/cas/polisci/publicsector.cfm or contact the director of the Public Sector Studies Program.

ACADEMIC ADVISING AND LEARNING RESOURCES

The John B. Drahmann Academic Advising and Learning Resources Center coordinates academic support services for undergraduate students. University advisors in the Drahmann Center work closely with faculty and staff in the Residential Learning Communities, the deans' offices, the Cowell Center, the Career Center, the Office for Multicultural Learning, and the Center for Student Leadership to ensure that academic advising and other academic support services are integrated for the benefit of students.

Santa Clara University follows a developmental advising model based on a close student-faculty advisor relationship intended to assist students with achieving their educational, career, and personal goals through the use of the full range of institutional resources. The Drahmann Center provides training for faculty advisors through new faculty advisor workshops and ongoing training to keep faculty advisors current on University policies and available resources. The Center also collaborates with other areas to enhance the advising support for all students, such as providing support for the peer advising program in the School of Business.

The Drahmann Learning Resources Center offers drop-in and group tutoring as well as consultation and workshops on learning strategies, study skills, and time management. The Center also provides advising outreach for first-year and undeclared students and collaborates with the LEAD Scholars Program to ensure that first-generation college students are fully informed about the range of support services available to all students.

Pre-Health Sciences Advising *(Advisor: Steven L. Fedder)*

Santa Clara University has an excellent reputation for preparing students for careers in the health sciences. Most incoming students tend to be focused on either allopathic medicine or dentistry, but a much broader spectrum of careers can be equally or more attractive including osteopathic medicine, physical therapy, optometry, pharmacy, physician assistant, nurse practitioner, public health professional, and others. A Santa Clara education provides ample opportunity to acquire the academic foundations in natural science required by medical schools, and its broad liberal arts Core Curriculum also serves to develop the communication, personal interaction, and analytical skills needed both during medical school and in one's subsequent medical practice.

Although Santa Clara does not have a pre-med major, the courses prescribed by the Council of Education of the American Medical Association can be incorporated into several academic majors. In addition, many students become more skilled and competitive by enrolling in two or three upper-division science courses, often but not exclusively in biochemistry, genetics, and human physiology, which are helpful in preparing for the Medical College Admission Test (MCAT). The combination of Core Curriculum requirements with the University's focus on community involvement and issues of diversity will prepare students well for the newly revised MCAT 2015, with its greater emphasis on social, economic, and psychological determinants of health. Students should visit the Pre-Health Advising website at www.scu.edu/cas/prehealth and maintain regular contact with the pre-health sciences advisor throughout their undergraduate years for assistance with adjusting to college academic rigor and social life; developing an appreciation of the wide array of available health care careers; achieving balance between academics, social life, work, health community volunteering, and internships; selecting relevant entrance examinations; and applying to graduate health-science programs.

Pre-Law Advising *(Advisors: Brian Buckley, Lawrence Nelson, Terri Peretti, Diana Morlang, Melissa Donegan)*

Santa Clara University provides a wide range of opportunities for undergraduates to build a strong pre-law foundation. Early in their undergraduate program, pre-law students should consult not only with their major advisor but also with one of the designated pre-law advisors. Consultation with a pre-law advisor familiarizes the student with the rigors of law school, the practice of law, the burden of law school debt, and the means to best secure employment as an attorney. Advisors will help formulate a program to prepare students for the complexity of the application process, including preparation for the Law School Admission Test (LSAT). There is no specific major or curriculum required to qualify for law school admission. Successful law school applicants come from a diversity of majors such as anthropology, philosophy, communication, political science, physics, English, history, biology, and economics. However, to successfully prepare for the LSAT, students are advised to select courses that deepen reading comprehension and promote logical reasoning. Law school admissions officers generally recommend undergraduate preparation by selecting a major that demands discipline, analytical ability, research skills, close reading of texts, creativity, verbal skills, and precision in written and oral work. The departments of

Philosophy and Political Science offer a pre-law emphasis within the major (in philosophy, it is also available within the minor). Elective courses also provide valuable training and breadth of academic and analytical experience. Some elective courses strengthen specific abilities, while others provide perspective on legal issues and topics. For recommended electives, see www.scu.edu/prelaw/.

Pre-Teaching Advising *(Advisor: Carol Ann Gittens)*

Santa Clara University is accredited by the California Commission on Teacher Credentialing to offer professional preparation for prospective elementary school, middle school, and senior high school teachers. The Department of Education in the School of Education and Counseling Psychology offers graduate programs for the multiple-subject credential for elementary grades and the single-subject credential for secondary grades, both with a cross-cultural language and academic development emphasis. The teaching credential program at SCU is combined with a Masters of Arts in Teaching (MAT) degree. Students interested in teaching should consider completing an interdisciplinary minor in urban education offered through the College of Arts and Sciences.

The Future Teachers Project (FTP), formerly known as the Eastside Future Teachers Project, works with students from traditionally underrepresented groups throughout Silicon Valley and the greater Bay Area, who are interested in becoming teachers. Through innovative outreach and support programs, the goal is to develop leaders who will make an immediate impact on their communities. FTP scholars are generally recruited during high school and once at SCU, are considered for the FTP scholarship, which contributes to undergraduate studies and the credential/MAT program. The FTP is managed through the Liberal Studies Program.

For more information, see Chapter 3, Liberal Studies Program.

THE WRITING CENTER

The HUB Writing Center (www.scu.edu/hub/) offers drop-in writing support to graduate and undergraduate students as well as workshops in public speaking, revising and editing, developing personal statements and cover letters, grammar basics, Pathway essay writing, and workshops for students for whom English is not their native language. The writing center also offers students the opportunity to become HUB writing partners and to participate in Independent Studies or research projects.

INFORMATION RESOURCES

Information Technology

Undergraduate students are supported with a variety of computing services at Santa Clara University. Students will receive an SCU Network ID that provides access to multiple accounts. Students also have access to a ubiquitous high speed campus, wired and wireless network, as well as connection to the Internet via the University's 10 GB connection.

Students may use the network to access their Gmail and Google Apps account, Camino learning support system, SmartPrint, SCU ePortfolio, Zoom webconferencing, endpoint protection/anti-virus software, and for wireless access. SCU email is used by the University as one of the communication channels to send official notifications to undergraduate students, and is also used as a frequent communication tool between and among faculty and students. Students are therefore urged to use their SCU email address as their primary

email. Students who opt to utilize other email services are advised to check their SCU email periodically to avoid missing important communications.

Students have access to administrative information and services at all times through the eCampus portal (ecampus.scu.edu). eCampus services include the ability to view class schedule and course history; run degree progress reports; request enrollment verification; enroll for classes (add, drop, swap); view exam schedules, grades, and unofficial transcripts; request official transcripts; review financial accounts; and maintain personal information such as addresses, phone numbers, alternate email addresses, and emergency contacts; and enroll in Campus Alert, the University's emergency notification system. Students who register for Campus Alert should keep their emergency contact information current in eCampus to ensure notifications are appropriately received.

The University provides over 150 PC and Mac workstations in the Learning Commons with a variety of software packages to support both general computing needs and multimedia production. Technology help and assistance is available at the Information Technology help desks in the Learning Commons approximately 18 hours per day, most days. Free guest wireless access is also available for students visiting friends and family.

Information Security Office

The Information Security Office protects the University's information assets and ensures that students have access to all of the information resources they need. To protect their private information, students are advised to change their eCampus and SCU Network ID passwords once each quarter; designate a PIN on phone and other mobile devices; install anti-virus software and keep it updated; and set up their computer operating system to install automatic updates.

Media Services

Media Services offers a broad range of audio, digital video, Web, graphics, and multimedia resources and services. All students have access to equipment and services for class use, class-related projects, and co-curricular use. Media Services supports technology in classrooms, conference rooms, and campus events spaces; the Camino Learning Management System, Zoom webconferencing, and Digication ePortfolio applications; multimedia and digital video production; and SCU's private cable TV system serving the residence halls.

University Library

Library resources, which can be accessed within the library and remotely, include an online catalog (OSCAR), more than 200 general and subject-specific databases, research guides for many subjects and some specific classes, "Ask a Librarian" 24/7 reference services, and LINK+ interlibrary loan program.

The library's collections have grown to more than 927,763 volumes, including approximately 15,877 e-books, and subscriptions to more than 133,237 magazines, journals, and newspapers; over 1,500 are in electronic format. Because the library is a depository for United States and California government documents, more than 600,000 government documents are available online, in print, or in other physical formats. Additionally, the library houses more than 900,000 microforms, hundreds of historical photographs, more than 5,000 maps, and over 20,000 audio/visual items.

INTERNATIONAL STUDENTS AND SCHOLARS

The International Students and Scholars Program provides assistance to undergraduate and graduate international students with support related to visas, intercultural and academic adjustment, and general support for their transition to, and continued success in, their studies on campus and in post-graduation employment.

DISABILITIES RESOURCES

The Disabilities Resources Office has been designated by the University to ensure access for all undergraduate and graduate students with disabilities to all academic programs and campus resources. The goal is to support students with medical, physical, psychological, attention deficit, and learning disabilities to participate fully in campus life, its programs, and activities. Emphasis is on growth and individual achievement through the provision of academic accommodations, support services, self-advocacy skill training, and disability-related educational programming for the campus community. Reasonable accommodations are provided to minimize the effects of a student's disability and to maximize the potential for success. A student may voluntarily register with the Disability Resources Office by completing the online registration form and providing documentation of his or her disability, after which proper accommodations will be determined and implemented by the University.

THE COWELL CENTER

The Cowell Center promotes a holistic approach to students' physical, emotional, psychological, and/or interpersonal well-being. The Center's counseling and medical staff are available when students believe that their well-being is being compromised in any way. Through Counseling and Psychological Services (CAPS), Student Health Services (SHS), Santa Clara University Emergency Medical Services (SCU EMS), and Student Health Insurance, the Cowell Center has a wealth of health and wellness resources to support students as they navigate the academic rigors at Santa Clara University.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) is staffed with psychologists who strive to promote, enhance, and support students' emotional and interpersonal well-being through a range of mental health services offered within a safe and confidential environment. Individual counseling, couples counseling, group counseling, and psycho-educational programs are available. In counseling, students work on a wide range of psychosocial and developmental issues such as depression, anxiety, interpersonal problems, disturbed sleep, eating behaviors, acculturation, academic motivation, homesickness, family concerns, intimacy, and sexuality. All students are eligible for up to 10 counseling sessions per academic year, the first six (6) sessions are free, with a nominal fee assessed for sessions seven (7) through ten (10).

When CAPS is closed, an after-hours emergency and suicide crisis hotline (408-279-3312) is available to students along with Santa Clara's unique crisis webpage featured on Ulifeline at www.ulifeline.org/scu/.

Student Health Services

Student Health Services (SHS) is staffed with a physician, physician assistant, nurse practitioners, registered nurses, and medical assistants. A psychiatrist, registered dietician, and physical therapy assistant are available on a part-time basis. SHS provides high-quality services such as primary medical care, physicals, diagnosis and treatment of illness and injuries, immunizations, gynecological examinations, a limited in-house pharmacy, and medical referrals to specialists when needed. Medical visits to the Cowell Center, Student Health Services, range from $10 to $50 per visit for all students. Visit fees are in addition to all other nominal associated fees such as the cost of medications, lab/blood tests, and/or supplies. Visits to the Cowell Center, Counseling and Psychological Services, range in cost from no charge to $100 per visit for all students. For further information, see the Cowell Center website at www.scu.edu/cowell. When SHS is closed, an advice nurse is available by phone for students both on campus (extension 4880) and off campus (408-554-4880). A volunteer student emergency medical group, SCU Emergency Medical Services (EMS), is also available to take care of medical emergencies on campus. The health center is closed from mid-June to mid-August.

SCU Emergency Medical Services

SCU Emergency Medical Services (EMS) is a student-run organization that is based out of the Cowell Center. These students are known as Emergency Medical Technicians (EMTs) and offer emergency medical services to SCU students from 5 p.m. to 8 a.m. every day during fall, winter, and spring quarters.

Student Health Insurance

All students are requested to complete a pre-entrance health history prior to arrival at the University and are required to maintain health insurance coverage while enrolled at the University. Students will be charged for University health insurance unless they complete an online waiver verifying their own comparable insurance each academic year.

KIDS ON CAMPUS

Kids on Campus, the University childcare and preschool program for children between 6 weeks and 5 years of age, is available for faculty, staff, students, and alumni. The staff at Kids on Campus provide a loving, creative, and safe learning environment designed to enhance the physical, mental, and social growth of each child through a "learning through play" philosophy.

3

College of Arts and Sciences

Dean: Debbie Tahmassebi
Associate Deans: Barbara M. Fraser, Stephen C. Lee
Senior Assistant Dean: Kathleen Villarruel Schneider
Assistant Dean: Rafael D. Ulate

The goals of the College of Arts and Sciences are to foster a learning community committed to addressing the fundamental problems of society with a spirit of inquiry, mutual respect, and intellectual excitement and to prepare students to understand and appreciate a broad range of peoples and cultures so they may exercise moral leadership in a pluralistic world. In this way, the College is central to Santa Clara's Jesuit, liberal education.

With more than 1,500 courses in the humanities, arts, social sciences, and natural sciences, the College offers an inclusive and welcoming academic environment providing:

- A common educational experience for all undergraduate students through the University's Core Curriculum
- Majors in 36 subject areas
- Departmental and interdisciplinary minor programs
- Opportunities for advanced study in a student's particular area of interest

All undergraduate students at the University explore the sciences and liberal arts through the University's Core Curriculum that challenges them to develop open and critical thinking, to communicate effectively, to work with complex methods of inquiry, to understand diverse cultures and peoples, and to appreciate the demands of ethical decision making. Those who select majors or minors in the College have the opportunity to develop specialized knowledge and skills in areas of concentration that reflect their personal interests and talents. Students are encouraged to use elective courses to pursue particular interests beyond their chosen major. In addition to selecting individual courses, students have the opportunity to organize their electives around minors and emphases in many departmental and interdisciplinary programs throughout the College.

The College of Arts and Sciences offers a variety of student-faculty research opportunities and ongoing mentoring relationships in which students work closely with faculty members in the creation of knowledge or original artistic works. These opportunities include research assistantships throughout the College in the arts, humanities, and natural and social sciences.

UNDERGRADUATE DEGREES

The College of Arts and Sciences confers the degree of bachelor of arts in ancient studies, art history, chemistry, classical languages and literatures (Greek and/or Latin), classical studies, communication, English, French and Francophone studies, German studies, history, individual studies, Italian studies, music, philosophy, religious studies, Spanish studies, studio art, and theatre arts. The College also confers the bachelor of science in anthropology, biochemistry, biology, chemistry, computer science (mathematics), economics, engineering physics, environmental science, environmental studies, individual studies, liberal studies, mathematics, physics, political science, psychology, public health science, and sociology. In addition, companion majors are available in ethnic studies and women's and gender studies.

REQUIREMENTS FOR THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE

To qualify, students must complete a minimum of 175 quarter units of credit, at least 60 of which must be upper-division, and satisfy the requirements of the Undergraduate Core Curriculum and the major. There are no additional College requirements.

MINORS IN THE COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences offers minors in ancient studies, anthropology, art history, biology, chemistry, classical languages and literatures (Latin or Greek), classical studies, communication, computer science, creative writing, dance, economics, English, ethnic studies, environmental studies, French and Francophone studies, German studies, history, Italian studies, Japanese studies, mathematics, music, philosophy, physics, political science, public health, religious studies, sociology, Spanish studies, studio art, theatre, and women's and gender studies. Descriptions of the minors and associated requirements can be found in the appropriate department or program section of this chapter.

In addition, the College administers interdisciplinary minors in Arabic, Islamic, and Middle Eastern studies; Asian studies; biotechnology; Catholic studies; Latin American studies; Medieval and Renaissance studies; musical theatre; and urban education. Descriptions of the interdisciplinary minors and the associated requirements are provided in the Interdisciplinary Minors and Other Programs of Study section at the end of this chapter.

DEPARTMENT OF ANTHROPOLOGY

Professor Emeritus: George D. Westermark
Professors: Mary Elaine Hegland, Lisa Kealhofer
Associate Professors: Michelle Bezanson (*Department Chair*), Luis Calero, S.J.
Assistant Professors: Mythri Jegathesan, Lee Panich

The Department of Anthropology offers a degree program leading to the bachelor of science in anthropology. A solid undergraduate foundation in anthropology secures the analytical skills needed to undertake professional degrees in anthropology, business, law, public health, social services, or provides a foundation for embarking on a number of other professional careers. The department also offers a minor, several emphases, and an honors thesis option.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in anthropology must complete the following departmental requirements:

- ANTH 1, 2, 3
- SOCI 1
- ANTH 50 or ENVS 50 or POLI 50
- ANTH 110, 112, 114, 198
- Five upper-division courses selected from the following four categories: biological (ANTH 130–139), archaeological (ANTH 140–149), cultural (ANTH 150–179), or regional (ANTH 180–189). At least three of the four categories must be represented in the student's selection.
- An introductory statistics course
- Six anthropology seminars

Emphasis Programs in Anthropology

Anthropology majors have the option of completing a special emphasis program to complement their majors. The emphasis is not a narrow specialization but reflects competence in the subfields of the discipline. Completion of a special emphasis program will be noted on student transcripts with the approval of the department chair.

The emphasis in ***applied anthropology*** prepares students to use anthropological knowledge to address critical human issues in careers outside academia. Through coursework and related internships, students will gain a better understanding of how anthropological knowledge and skills can be used in occupations related to health and medicine, international development, environment, government, business, education, immigration, and poverty. The emphasis in ***archaeology*** focuses on a deeper understanding of the human past and how it is studied. This is a possible course of study for majors with an interest in employment in cultural resource management or graduate study in archaeology. The ***biological*** emphasis provides in-depth training in the field of biological anthropology. Students will acquire intellectual breadth and depth with regard to the interdisciplinary nature of anthropology and the biological and cultural interactions that have influenced human evolution and modern human diversity.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in anthropology:

- ANTH 1 or 2
- ANTH 3
- One additional lower-division anthropology course
- ANTH 110
- Two approved upper-division anthropology courses
- Four anthropology seminars

LOWER-DIVISION COURSES

1. Introduction to Biological Anthropology

Using an evolutionary framework, we examine how past and current human variation is measured, our place in nature, human genetics, human and nonhuman primate biology and behavior, the primate and hominin fossil record, and the origin and meaning of human biological and behavioral variation. Students gain experience in biological anthropology methods, data analysis and interpretation, and the theoretical frameworks that guide our understanding of what it means to be human. Laboratory 15 hours. (4 units)

2. Introduction to Archaeology

How do archaeologists understand the past? This course examines the methods, theories, and analytical techniques that archaeologists use to study the past and interpret ancient cultures. Selective survey of human cultures over time in different regions of the world. Laboratory 15 hours. (4 units)

3. Introduction to Social and Cultural Anthropology

This course provides an introduction to the subject matter, research methods, and applications of cultural anthropology. Its purpose is to help students understand how different human groups think and live, how they cope with life's demands and expectations, and how they make sense of the world. In order to gain additional experience with diverse cultural groups, students are required to participate in off-campus Arrupe Partnerships. (4 units)

4. Vanished People and Lost Civilizations

"Popular archaeology" is addressed by examining past societies, human migrations and cultural contacts, and ancient human behavior and technologies. Ideas and assumptions found in movies and other popular media will be evaluated in light of current archaeological data and theory. (4 units)

5. Popular Culture and Bioanthropology

From *King Kong* to *Clan of the Cave Bear*, students examine popular culture interpretations of biological anthropology. After reviewing the history of biological anthropology, we analyze popular avenues (film, cartoons, newspapers, fiction) through which the public has been informed about human variation, the human fossil record, primate behavior, and human genetics. (4 units)

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address measuring humanity, peace and violence, social

change in the Middle East, migration and transnationalism, and other topics. *Successful completion of C&I I (ANTH 11A) is a prerequisite for C&I II (ANTH 12A).* (4 units each quarter)

50. World Geography

This course explores world geography through examination of contemporary global problems including poverty and inequality, political conflict, environmental crises, and natural disasters. Special emphasis on challenges of economic development in Third World countries and on interconnections among diverse places and events. *Also listed as ENVS 50 and POLI 50.* (4 units)

56. Anthropology of Religion

This course examines the relationship between religion, culture, personality, and social organization as well as theories on the function of myth, ritual, and symbols. Specific topics include religious leaders, interpretations of death and afterlife, traditional curing, and religious movements and cults. (4 units)

86. Native American Cultures

Students are introduced to selected issues in the anthropological study of Native American cultures. Focus is on developments since the onset of European colonization as well as an examination of contemporary issues in Native America. (4 units)

91. Lower-division Seminar in Anthropology

Seminar for first-year students and sophomores on selected issues in anthropology. *By permission of the instructor only.* (4 units)

UPPER-DIVISION COURSES

110. Anthropological Theory

This course provides a historical survey of the development of different areas of anthropological theory. By exploring original and secondary writings, students are able to understand how theoretical frameworks differ from each other and how anthropology has evolved as a discipline. Required for majors and minors in anthropology. *Students should take this class no later than winter quarter of their junior year.* (5 units)

112. Anthropological Methods

This course examines research procedures, ethics, and theoretical issues associated with anthropological practice. Skills and methods of (qualitative and quantitative) research design and analysis are explored in readings and exercises. Required for majors in anthropology. *Prerequisites: ANTH 1, 2, 3, with grades of C– or better, or special permission of the department chair. Students should take this class no later than spring quarter of their junior year.* (5 units)

114. Senior Project

An in-depth writing intensive senior seminar in anthropology. Topic will change annually. Required for majors in anthropology. *Prerequisite: ANTH 112 with a grade of C– or better, or special permission of the department chair. Students should take this class winter quarter of their senior year.* (5 units)

130. Primate Behavioral Ecology

This course focuses on the theoretical frameworks that guide primate behavioral studies, including in-depth empirical exploration of adaptation, comparative primate behavior, ecology, field studies, and classification. Critical evaluation of core concepts in primate behavioral ecology as well as data collection, presentation, and interpretation in primate field studies are reviewed. (5 units)

132. Paleoanthropology

How do we know what we think we know about human evolution? Students explore this question by reading primary literature, examining fossil and comparative data, and exploring current technology for interpreting hominin evolution. Class reviews evolutionary theory and the varying applications of paleoanthropological analysis to understanding past and present variation. (5 units)

133. Human Nutrition and Culture

Study of the biocultural interactions that shape dietary patterns and nutritional status of modern humans. Focus on the evolution of the human diet and nutritional requirements; the basic principles of human nutrition and nutritional assessment; and the social, technological, and political factors that influence the nutritional health of human societies today. (5 units)

134. Health, Disease, and Culture

This course emphasizes the study of health and disease from biocultural and ecological perspectives; the influence of culture on the ways people explain and treat illness, stress, and healing; and the complexities of health care delivery in pluralistic societies. (5 units)

135. Human Development and Sexuality

Examination of evolutionary and biocultural aspects of human growth, development, and sexuality throughout the life cycle. Special emphasis on how various cultural, economic, and political factors influence norms of sexual behavior in different societies. (5 units)

136. Forensic Anthropology

Using physical remains to learn what we can about the age, gender, and other characteristics of deceased people, including their nutrition, exposure to diseases, experience with serious accidents, and causes of death. (5 units)

137. Evolutionary Medicine

This course examines how evolution has impacted human health and addresses questions such as: How are biology and human health related? How can an evolutionary perspective help us treat diseases? Topics from pregnancy to cancer and diet are examined through the lens of what we know about both human evolution and evolutionary processes. (5 units)

140. Food, Culture, and the Environment

Exploration of the history and impact that food choices have made on human societies. Several foods that have become staples in the world today (e.g., sugar, pepper, and various grains) have significantly affected the environment, patterns of land use, economy (both local and global), cuisine, and the meaning of meals and food sharing. Class topics illustrate how food choices shape cultural groups and interaction, as well as how they shape environmental change. (5 units)

142. Environmental Archaeology

How archaeologists use environmental data to understand past human societies. Discussion topics include issues of human evolution, complexity, symbolism, social interaction, and technology. Discussion of the data and arguments offered for the role of environments in creating and shaping cultures—how environments and people shape each other. (5 units)

145. Historical Ecology

This class investigates the historical relationships between cultures and their environments. Students learn various methods to explore data, including historical documents, maps, and land use information, to reconstruct the historical ecology of the Santa Clara Valley. (5 units)

146. Anthropological Perspectives on Colonial California

Examines the Spanish and Russian colonization of California, with particular emphasis on their interactions with Native American societies. Ethnohistorical, documentary, and archaeological evidence will be used to explore European and Native American experiences in colonial California and the impact of European colonialism on communities today. (5 units)

147. Archaeology of Complex Societies

The world and people have changed radically in the last 10,000 years with the domestication of plants and animals and the development of cities and states. We examine archaeological evidence in different regions of the world (after 12,000 BC) to understand how and why these transformations occurred. (5 units)

148. Historical Archaeology

Introduction to the discipline of historical archaeology focusing particularly on colonial and U.S. contexts. Explores the history of underrepresented groups, from women and children to slaves, and colonial or contact interactions. A wide range of data sources used by historical archaeologists to aid in interpreting the past are explored. (5 units)

149. Virtual Santa Clara

Examination of public archaeology and museum studies in the digital age. Research on the cultural history of the SCU campus and the creation of content for online exhibits—a "virtual museum"—focusing on Santa Clara's unique cultural heritage. (5 units)

150. Religion in Culture and Society

This course examines a wide range of religious beliefs, symbols, and practices that humans use to bring order and meaning into their existence. It explores theoretical interpretations of religion, the universality of myths and rituals, and the manner in which religious traditions are integrated into the fabric of daily lives and into international politics. (5 units)

151. Law and Society

Current issues in the study of law and society. Exploration of legal systems at various levels of societal complexity to understand the basis for social control in all human societies. Courts, legal professions, and politics are examined from a cross-cultural perspective. (5 units)

152. Political Anthropology

Cross-cultural examination of political behavior in a range of human societies and the effects of social, cultural, and environmental factors on political organization. Religion and politics, the role of women in politics, ethnic competition, secret societies, political ritual and ceremony, and the effects of colonialism and economic change. Special emphasis on the relationship between local communities and national governments. (5 units)

153. Anthropology of Music

An intellectual history of ethnomusicology. Approaches and theories from anthropology, musicology, folklore, religious studies, linguistics, critical theory, and gender studies will be explored in order to interrogate music's relationship to culture, power, and practice. *Also listed as MUSC 130.* (5 units)

154. Environmental Anthropology

Survey of the theories and methods used to examine the complex and dynamic interactions between humans and their physical environment (past and present). An emphasis is placed on the relationships between human cultural systems and ecological contexts by focusing on how humans use and transform ecosystems and how such interactions shape social, political, and economic institutions. Topics include political ecology, environmental justice, ecotourism, and natural resource exploration. (5 units)

155. Conflict Resolution

Examines sources and responses to conflict in varied social and cultural contexts. Emphasis on application of negotiation, mediation, and arbitration in different fields. (5 units)

156. Anthropology of Muslim Peoples and Practices

Examination of the variety of religious experiences, activities, and interpretations, and the place of Islam in current social and political life such as community organization, local-level politics, governments and political resistance, women's roles and gender, and contact with the West. Discussion about underlying reasons for the resurgence of Islam and effects for Muslim peoples and societies. (5 units)

157. Family, Kin, and Culture

Examines the ways in which kinship and family life can be organized; causes and consequences of different family patterns; and how families differ across cultures, over time, and among different groups in the United States. *Also listed as WGST 155.* (5 units)

158. Applied Anthropology

Application of anthropological knowledge to contemporary human problems. Topics range from the introduction of new forms of economy through international development to anthropologists' work in refugee resettlement, environmental conservation, public health, social justice movements, and others. Also examined are the ethical dilemmas that emerge from applying anthropological techniques and data. (5 units)

159. Globalization and Culture Change

This course examines the cultural and economic changes brought about by globalization. It prepares students for traveling abroad and provides a reflective space for those who have returned. By critiquing corporate global control, cultural hegemony, and the illusion of unlimited economic growth, this course provides an alternative view of environmental sustainability and global justice. (5 units)

170. Women, Gender, and Sexuality

Cross-cultural examination of the roles, statuses, sexuality, and gender constructions of females and males through monographs, films, and guest speakers. Exploration of factors affecting the lives of women and men, such as domestic and public realms of activities, contested identities, political and economic factors, social change, religion, family, and socialization. *Also listed as WGST 187.* (5 units)

172. Anthropology of Aging

Examination of aging and the elderly in a range of human societies. Emphasis on social change, gender, and social and geographic mobility, as well as social, political, and cultural differences in understanding how the elderly adapt to, and cope with, the modern world. (5 units)

180. Study of Selected Cultures

Examination of the social life, culture, and institutions of geographic areas and culture zones not otherwise covered in ANTH 181–188 regional studies course series. (5 units)

181. Globalization and Culture Change in the Pacific Islands

Examines the transformation of Pacific Island societies in response to globalization. Change in island cultures, effects of urbanization, and the migration of diasporic communities are studied. Connections made between Pacific Island areas of Micronesia, Melanesia, and Polynesia, and other world regions. (5 units)

184. Religion and Culture in Latin America

This course studies the relationship between culture and religion in Latin America, and how they have influenced each other over time. The class is designed in three stages. First, it examines the pre-Columbian world of religious beliefs and practices as embodied in the Maya, Aztec, and Inca cultures. Secondly, it explores how three centuries of Iberian colonialism and Catholic hegemony shaped the values, cultural traditions, and institutions of the region as reflected in the appearance of syncretistic forms of religion of European, African, and indigenous roots. Lastly, it studies the changes that have occurred in the last two centuries as the continent has gradually evolved from Catholic control to religious pluralism. Special attention will be given to the impact of Vatican II on the church in Latin America, the rise and role of liberation theology, and the emergence of Evangelical and Pentecostal Protestantism. (5 units)

185. Peoples of Latin America

An overview of the environmental, cultural, economic, and political diversity of Latin America. Students study the region's physical geography, its pre-Columbian past, and the impact of the European invasion on its native peoples. In addition, this course examines pressing regional problems of widespread poverty, diminishing natural resources, and the relation between religion, culture, and politics. (5 units)

186. Mesoamerican Prehistory

A survey of the prehistoric cultures of Mesoamerica from earliest human occupation to European colonization. Examines the origins of agriculture, village life, and the rise and fall of state-level societies through the work of archaeologists and epigraphists. Consideration given to the ecological adaptations, social organization, and belief systems of the Aztecs, Toltecs, Maya, and the inhabitants of Teotihuacan. Comparison of Mesoamerican societies with ancient societies around the world. (5 units)

187. Middle East: Gender and Sexuality

Examination through monographs, novels, guest speakers, and films of the situations and activities of Middle Eastern women in a variety of geographical and class settings. Topics include gender, sexuality and the body, women in economic and political process, family and kinship, war, and revolution. Women and gender symbolism as related to politics, development, social change, and religious resurgence. *Also listed as WGST 120.* (5 units)

188. Middle East: Culture and Change

Examination of people's lives, social organization, and change in the Middle East through archaeological evidence, ethnographies, film, and novels. Emphasis on political culture, the fate of tribal peoples and peasants under modernizing nations, women in society and gender symbolism, contact with the West, Islam and religious resurgence, and revolution. (5 units)

189. Issues in North American Archaeology

How do and what do we know about the pre-Columbian cultures of North America? Students explore this question by reading primary literature, examining archaeological and comparative data, and exploring current technology for interpreting archaeological sites. This class reviews the various theories and methods that have shaped both our understanding of the past in North America and the techniques archaeologists use to study the past. The types of questions we ask drive the development and applications of new analytical approaches and techniques, which change the way we view Native Americans and their past. (5 units)

190. Advanced Seminar in Anthropology

Seminars for juniors and seniors on selected topics in anthropology. *By permission of the instructor only.* (5 units)

194. Peer Educator in Anthropology

Peer educators in anthropology work closely with a faculty member to help students understand course material, think more deeply about course material, benefit from collaborative learning, feel less anxious about testing situations, and/or help students enjoy learning. *By permission of the instructor only.* (1–2 units)

195. Field Course in Anthropological Methods

On-site anthropological field research in any of the subfields of anthropology. Practical experience in the basic techniques of observation and field analyses. *By permission of the chair and instructor only.* (5 units)

196. Archaeological Method and Theory

Introduction to the techniques of discovery and analysis that archaeologists have found useful in research. Special attention to sampling techniques in survey and excavation. Classification techniques for measuring parameters of prehistoric demography, diet, craft specialization, and exchange. (5 units)

197. Field Course in Primate Behavioral Ecology

On-site anthropological primatological field research with practical experience in the basic techniques of observation and field data analysis. Special attention to community ecology, proposal writing, data collection, data analysis, and presentation. Students conduct independent data collection to produce a completed scientific paper for which they are the sole author. (5 units)

198. Research Practicum

Opportunity for students to work and conduct anthropological analyses in community agencies, museums, government agencies, and political or industrial organizations. May be repeated for credit with approval of the chair. Required for majors in anthropology. *Students must receive approval from their advisor prior to registration. Internship placements must be completed prior to fall quarter of senior year. Field schools and other research experiences may substitute for internship placements with approval. Students must enroll in the internship class during the fall of their junior or senior year.* (5 units)

199. Directed Reading/ Directed Research

Intensive reading in areas not emphasized by the department. Independent research on specific topics not fully covered in departmental courses. May be repeated for credit with approval of the chair. *Written departmental approval necessary prior to registration.* (5 units)

DEPARTMENT OF ART AND ART HISTORY

Professors Emeriti: Brigid Barton, Samuel R. Hernandez
Professors: R. Kelly Detweiler, Kathleen Maxwell
Associate Professors: Katherine Aoki (*Department Chair*), Blake de Maria, Don Fritz, Katherine L. Morris, Andrea Pappas
Assistant Professors: Karen Fraser, Takeshi Moro, Ryan Reynolds, Tobias Wofford
Senior Lecturer: Francisco "Pancho" Jiménez
Lecturers: Renee Billingslea, Julie Hughes

The Department of Art and Art History offers a degree program leading to the bachelor of arts in two undergraduate majors, art history and studio art, with courses in both disciplines fostering a thorough understanding of the history and practice of art.

Department faculty encourage interdisciplinary connections with the Santa Clara community through course offerings that fulfill a wide range of College and Undergraduate Core Curriculum requirements, as well as courses through the University Honors Program.

ART HISTORY

The art history major at Santa Clara is distinguished by excellent teaching and mentoring, challenging coursework, and opportunities for study abroad, peer educating, and student internships at local and Bay Area institutions. Moreover, we support, in conjunction with our fully accredited campus museum, Explore with Me, a docent-training program for our students. Advanced art history majors are encouraged to participate in our annual Art History Symposium and the Art History Research Paper Competition. The art history major features numerous opportunities for personal and professional growth to better understand the meanings and purposes of the visual arts, including its historic development, roles in society, and relationships to other fields in the humanities. Students learn to think critically and communicate clearly about works of art. The art history major develops the following skills: knowledge acquisition, critical thinking, analysis of visual and textual sources, advanced research and writing skills, and sophisticated oral presentations. These intellectual skills enable art history majors to pursue a diversity of interests in a wide spectrum of fields and professions, including graduate work in art history.

STUDIO ART

Studio art majors develop comprehensive skills that help prepare them for graduate study or careers in either the fine or commercial arts. Faculty members emphasize the development of conceptual and technical competence, as well as critical analysis of the student's own work and that of others. By graduation, every student develops a body of original artwork to be exhibited in a senior show in the department gallery. Students are required to articulate an artist's statement reflecting their own engagement with the creative process, in conjunction with their senior show.

Studio art majors take three art history courses and are encouraged to take one or more courses in 20th-century or contemporary art. The studio seminar is required for all studio art majors and should be taken in the third year when possible. At the end of each year, students are encouraged to submit their work to the Annual Student Art Exhibit, which is judged by an outside professional in the field of art. The department also oversees merit-based scholarships, which are usually given to outstanding students with junior status.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of arts degree, students majoring in art history (ARTH) or studio art (ARTS) must complete the following departmental requirements:

Major in Art History

Students must complete 15 courses (13 ARTH and 2 ARTS):

- Four courses from ARTH 11A, 12A, 21-27
- Two lower- or upper-division ARTS courses
- ARTH 100 (preferably at the end of sophomore year)
- Five upper-division ARTH courses
- Two additional lower- or upper-division ARTH courses
- ARTH 196 (senior year)

Note: Only 4 units of ARTH 93/193, 98/198 may count toward the major. Studio art or art history courses taken during a term of study abroad may be applied to no more than half of the requirements for a major in art history. No more than three courses may be taken abroad to fulfill the five upper-division ARTH course requirement. Students who wish to receive credit toward a major or minor for studio art courses taken at affiliated study abroad programs must be able to document their work for review by members of the department's faculty.

Major in Studio Art

Students must complete 16 courses (13 ARTS and 3 ARTH):

- ARTS 30
- ARTS 74 or 174
- One two-dimensional foundation course from ARTS 32, 72, or 181
- One three-dimensional foundation course from ARTS 33, 63, 163, 64, or 164
- One course from ARTH 21-27 (ARTH 23 recommended)
- Seven additional ARTS courses (upper-division preferred, excluding ARTS 194)
- One lower- or upper-division ARTH course with a global emphasis
- One upper-division ARTH course with a modern or contemporary emphasis (ARTH 185 recommended)
- ARTS 196A (recommended junior year)
- ARTS 196B (senior year)

Note: Studio art or art history courses taken during a term of study abroad may be applied to no more than half of the requirements for a major in studio art. Only one ARTH course may be taken abroad to fulfill the requirements for a major in studio art. Students who wish to receive credit toward a major or minor for studio art courses taken at affiliated study abroad programs must be able to document their work for review by members of the department's faculty.

REQUIREMENTS FOR THE MINORS

Minor in Art History

Students must complete 7 courses (6 ARTH and 1 ARTS):

- Two courses from ARTH 11A, 12A, 21–27
- One studio ARTS course
- Three upper-division ARTH courses
- One additional lower- or upper-division ARTH course

Note: Only 4 units of ARTH 93/193, 98/198 may count toward the minor. Studio art or art history courses taken during a term of study abroad may be applied to no more than half of the requirements for a minor in art history. Only one upper-division course may be taken abroad to fulfill the three upper-division ARTH course requirement. Students who wish to receive credit toward a major or minor for studio art courses taken at affiliated study abroad programs must be able to document their work for review by members of the department's faculty.

Minor in Studio Art

Students must complete 7 courses (6 ARTS and 1 ARTH):

- One two-dimensional course from ARTS 30-72 (or approved upper-division equivalent)
- One three-dimensional foundation course from ARTS 33, 63, 163, 64, or 164
- Four additional ARTS courses (upper-division preferred, excluding ARTS 194)
- One lower- or upper-division ARTH course

Note: Study abroad courses are not accepted for a minor in studio art.

LOWER-DIVISION COURSES: ART HISTORY

11A and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address art, politics, propaganda, and other topics. *Successful completion of ARTH 11A: C&I I is a prerequisite for ARTH 12A: C&I II.* (4 units each quarter)

21. Introduction to the Arts of Ancient and Medieval Europe

A foundation course of the art history program focusing on visual analysis and the ancient and medieval world. Topics may include the relationship between Greek art and politics, Imperial Roman art, propaganda, Pompeian wall painting, early Christian art, the origins of Islam, and the function and culture of pilgrimage in the Middle Ages. *Not open to students who have taken Art, Power, and Propaganda (ARTH 11A or HNRS 11A).* (4 units)

22. Art in the Age of Exploration: Introduction to Early Modern Europe

Few periods in the history of art inspire greater reverence than the Renaissance. But why? What renders objects such as Michelangelo's *David* or Leonardo's *Mona Lisa* to become pop culture icons in the 21st century? This survey course of European visual culture from approximately 1348 to 1648 seeks to answer this question through the study of canonical works; artists such as Raphael, Titian, and Dürer; and artistic centers including Venice, Florence, Rome, and Paris. Other topics for discussion may include the patronage and production of art; the visual construction of gender identity; the relationship between art, science, and religion brought about by humanist study; and the impact of global trade and exploration on the development of European visual culture. *Not open to students who have taken Art, Power, and Propaganda (ARTH 12A or HNRS 12A).* (4 units)

23. Art and Revolution: Europe and the United States, 18th–20th Centuries

Introduction to the visual culture of modern Europe and the United States from Louis XIV to the present. This course traces the origins of modern art through political, technological, and artistic revolutions, from royal patronage to Pop, Neoclassicism to Neo-dada, as well as Impressionism, Surrealism, and Abstract Expressionism. *Fulfills the Studio Art program modern or contemporary emphasis course requirement.* (4 units)

24. From Damascus to Dubai: A Survey of the Visual Culture of the Middle East

From the majesty of the Dome of the Rock in Jerusalem to the awe inspiring heights of the Abu Dubai skyline, few regions boast as long and impressive a history of ambitious art and architecture as the Middle East. Yet, this region is likewise one of the most misunderstood. This survey course focuses on the rich and diverse visual culture of the region from the 7th century CE to the present day. Topics for discussion include early mosque architecture, scientific developments in medieval Baghdad, the rise of the Ottoman Empire, the garden city of Isfahan, European colonialism in North Africa, and contemporary art and architecture. *Not open to students who have taken ARTH 164. Fulfills the Studio Art program global emphasis course requirement.* (4 units)

25. Indigenous Visions: Introduction to the Arts of the Americas

Introduction to the indigenous arts and architecture of North, South, and Central America from prehistory to the present including the Olmec, Aztec, Inca, Native American Great Plains, and Southwest. Themes include indigenous concepts of time and space; the vision quest; warfare and blood sacrifice; art and the sacred. Lecture and discussion, plus a visit to a local museum. *Fulfills the Studio Art program global emphasis course requirement.* (4 units)

26. Buddhas, Buildings, and Beauties: Theme and Style In Asian Art

How did forms of Buddhist imagery change as the religion spread across the Silk Road? How was architecture used to convey the power and authority of the Mughal rulers in India or high-ranking samurai in Japan? How were standards of feminine beauty revealed in Japanese woodblock prints or Chinese court paintings? This survey of the artistic cultures of India, China, and Japan from the 3rd century BCE through the 19th century will contemplate such issues, examining various media within the broader context of traditional Asian literature, politics, philosophies, and religions. Other topics may include Chinese tombs, literati aesthetics, Zen arts, garden design, and Rajput and Rinpa painting styles. *Fulfills the Studio Art program global emphasis course requirement.* (4 units)

27. Introduction to the Arts of Africa

This is an introductory survey of African art designed to provide foundational knowledge in some of the major aesthetic/cultural complexes on the continent and their interaction with the rest of the globe. Each culture will be approached as a case study with an emphasis on cultures in sub-Saharan Africa. Tensions between traditional and contemporary arts will be explored as well as theoretical approaches to the study, collection, and display of non-Western art. *Fulfills the Studio Art program global emphasis course requirement. Formerly ARTH 46.* (4 units)

93. Explore with Me Docent Program

The Explore with Me Docent Program is a museum internship in which students are trained to give public docent tours of the de Saisset Museum's temporary exhibitions. No previous knowledge of art history or experience with museums is required. As part of the curriculum, students will learn the necessary skills and information to provide thoughtful and engaging tours. They will be trained in Visual Thinking Strategies (VTS), a touring style that uses questions and interactive conversation to relay information about the objects on display. The program provides a great opportunity for students to gain professional experience working in the arts, to learn to speak comfortably and confidently about art, and to develop and improve public speaking skills. In addition to attending class sessions and completing short assignments, each docent is required to give three public tours as part of the course. *Students may enroll for up to two quarters to receive both lower- and upper-division credit.* (2 units)

97. Special Topics

Occasional courses in selected art historical topics. May be repeated for credit. (4 units)

98. Internship/Practicum

Individual projects in conjunction with professional visual arts agencies. May be repeated for credit. *Prerequisite: Written proposal must be approved by on-site supervisor, art history faculty member, and department chair.* (2–4 units)

UPPER-DIVISION COURSES: ART HISTORY

100. Art History Proseminar

"What is the history of art history? What does it mean to think like an art historian?" To answer these questions we will examine the origins of the discipline and its current methodologies. Close textual analysis with writing and discussion. Required of all art history majors, preferably at the end of sophomore year. *Prerequisites: Two ARTH courses, one of which must be upper-division, or permission of instructor. Formerly ARTH 190.* (5 units)

104. Greek Art and Architecture

Examination of Greek art from the Archaic through the Hellenistic periods. Developments in architecture, sculpture, vase painting, and wall painting will be addressed in their cultural context. (5 units)

106. Art and Architecture of the Roman Republic and the Early Empire

Chronological survey of artistic development in Republican and Imperial Rome. Related issues include the influence of Greek and Etruscan art, the relationship between political ideology and public art programs, and the impact of improved materials on building design. (5 units)

110. Early Christian and Byzantine Art

Christian art and architecture from the catacombs in Rome through the early 14th century in Byzantium. Highlights include the Constantinian monuments of Rome, Justinianic Ravenna and Constantinople, iconoclasm, and the Macedonian "Renaissance." (5 units)

112. The Art of the Book

Covers select developments in the illustrated book between the 5th and 15th centuries CE. Topics for discussion may include the earliest preserved classical and religious codices, Anglo-Saxon manuscripts, Carolingian and Ottonian manuscript illumination, Romanesque and Gothic manuscript illumination, and Byzantine manuscript illumination. (5 units)

114. Early Medieval Art

Art and architecture in Western Europe from the early Middle Ages to circa AD 1000. Hiberno-Saxon, Carolingian, and Ottonian art discussed in their respective political, intellectual, and cultural contexts. (5 units)

120. Keeping up with the Medici: Fame and Family in Renaissance Florence

What makes someone a "household name"? Is it talent, beauty, connections, or simply shrewd marketing? While fame, fortune, and celebrity may seem like modern phenomena, the cult of personality was equally prominent in Renaissance Florence. As is the case today, money played a key role in the arts. This course focuses on the ways in which the Medici family, through their social, financial, and spiritual support, transformed the city of Florence from an Italian commune with limited natural resources into the center of the European culture. And in doing so, transformed the notion of the artist from that of mere craftsman to superstar. Additional topics of discussion include the influence of the capitalist economics on artistic production, domestic art perceptions of the nude figure in religious paintings, the relationship between art and science, and the writings of Machiavelli. (5 units)

121. Venice and the Other in Renaissance

Concentrates on the art and architecture of the Venetian Republic from approximately 1400–1650 CE, specifically the visual culture produced by and/or associated with ethnic and social groups excluded from the highest echelons of Venetian society. Areas of inquiry include Muslim merchants living in the city, construction of the Jewish ghetto, Ethiopian servant community, courtesan culture, convent life, the material culture of exorcism, witchcraft, and dwarfism. *Prerequisite: Upper-division status or permission of instructor.* (5 units)

122. Papal Rome: Power, Intrigue and the Arts

As the leader of the Catholic Church, an early modern pope was Europe's most powerful spiritual leader. He was also one of Europe's most powerful political leaders. This course examines the ways in the concerns of faith and politics, at times dependent, at times adversarial, but always in direct exchange with one another, influenced the visual culture of early modern Rome. Special attention will be focused on the construction of St. Peter's Basilica, the decoration of the Sistine Chapel and Vatican apartments, cardinalate palaces, suburban villa decoration, and the artistic reaction to the Protestant Reformation. (5 units)

123. The Global Renaissance

The Renaissance has traditionally been viewed as a period of artistic and cultural development associated almost exclusively with the Italian peninsula in the 15th and 16th century. This same tradition privileges "high art" - that is, painting, sculpture, and architecture - over other forms of visual culture. This course seeks to reassess these notions by considering Italian Renaissance art within the context of early modern globalism. This reexamination likewise mandates a consideration of a broader spectrum of objects, including gemstones, glassware, and textiles. Topics such as the relationship

between Michelangelo, Leonardo, and the Ottoman architect Sinan; the collection of Aztec feather paintings by the Medici family; and the influence of Egyptian mosque architecture on Venetian palace design will be examined from an interdisciplinary perspective. *Fulfills the Studio Art program global emphasis course requirement. Not open to students who have taken The Global Renaissance (ARTH 11A and 12A). Prerequisite: One lower-division ARTH course (ARTH 22 or 24 suggested).* (5 units)

128. The Glories of Baroque Rome: Caravaggio, Artemisia, and Bernini

This course focuses on the art and culture of Rome in the early 17th century and specifically the three artists whose activity left a lasting impact on the city we love today: the "rebel" Caravaggio, the "other" Artemisia Gentileschi, and the "genius" Gian Lorenzo Bernini. An in-depth examination of the lives and works of the three most dominant personalities of the Roman Baroque period provides the lens through which students will examine the significant social, cultural, spiritual, and artistic changes that took place in the Counter-Reformation city. Topics for discussion include the visual agenda of the papacy, Caravaggio's mythologies, Artemisia Gentileschi and women artists, theatricality in the work and writings of Bernini, and the influence of Galileo upon the visual arts. (5 units)

135. European Art: 1780–1880

Analysis of the culture and art of Europe from the era of the French Revolution to the end of the 19th century. This course will address the relationship between politics and art, shifting class structures, and the increasing importance of the industrial revolution. Painting, sculpture, architecture, and other media will be covered. (5 units)

137. Modern Art in Europe: 1880–1940

The emergence of Modernism in Europe from the 1880s to World War II. The major movements of Expressionism, Cubism, and Surrealism will be studied in the larger context of political, social, and economic change. Painting, sculpture, architecture, and other media will be covered. *Fulfills the Studio Art program modern or contemporary emphasis course requirement.* (5 units)

140. Photography in the United States

We live in a world densely populated by photographs; how did that come about and what purposes has photography served in the U.S.? We will examine the social, political, and aesthetic aspects of American photography from its inception in the 1830s to the present. Close readings of objects yield insights into the creation and growth of popular and elite audiences for photography; journalistic, ethnographic, and documentary photography; fashion and commercial photography; photography as an artistic medium; the role of photography in discourses of race, gender, class and nationalism; and photography in relation to modernism, postmodernism, and consumer culture. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Prerequisite: One ARTH course or permission of instructor. Formerly ARTH 186.* (5 units)

141. Tradition and Change in Native American Art: California and the Pacific Northwest

Visual culture of the native peoples of California and the Pacific Northwest, from prehistory to the present. Emphasis on the role of the artist in society and on artistic responses to political and cultural change. Topics include arts of status, shamanism, World Renewal, Missions, tourism, and the rise of the art market. (5 units)

142. Native American Art: Special Topics

Sustained analysis of a specific time period or genre of Native American art. Emphasis on 20th-century/contemporary art. Topics may include tourism/market forces, land and cultural preservation, postcolonialism, and gender identity. Research paper will be required. *Fulfills the Studio Art program modern or contemporary emphasis course requirement.* (5 units)

143. Women's Work: American Women in the Visual Arts

From colonial times to the ongoing feminist revolution of the present, American women made, sold, collected, and supported visual art, and in so doing profoundly influenced the development of the nation's culture, art, and art institutions. This course will examine American women's roles in the visual arts and the active interplay between issues embedded in art and "craft," women's self-fashioning and the art market, images of women, and the impact of women's studies and feminism on the study of the visual arts. Close readings of images and objects spanning traditional and nontraditional media such as painting, sculpture, photography, embroidery, and quilting produce insights into the dynamic relationships between gender and art, culture, and commerce in American history. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Prerequisite: One ARTH course or WGST 50, or permission of instructor. Formerly ARTH 188. Also listed as WGST 156.* (5 units)

144. Race, Gender, and Nation in 18th- and 19th-Century American Art

What did visual and material arts from the Colonial period to the Gilded Age (1880s) look like and how did they function in colonial society and in a new, fast-growing nation? Close readings of objects illuminate the relationships between art, gender, and race; self-fashioning and social identity in portraiture; the "West as America"; American national identity at home and abroad; landscape painting; photography; representations of democracy, politics, and citizenship; representations of the Revolutionary and Civil Wars; collectors and the creation of art institutions; and an audience and market for art in the United States. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Prerequisites: ARTH 11A & 12A (C&I I and II), or one other ARTH course, or permission of instructor.* (5 units)

145. Perpetual Revolution: American Art in the 20th-Century

The 20th Century was a period of turmoil and growing international stature for the U.S. How did artists deal with these events, which saw several wars, including two World Wars; the Great Depression, the growth of labor unions, the Civil Rights Movement, feminist reforms, etc.; and the encounter with European modernist art? How were these events shaped in turn shaped by art and visual culture? Close readings of objects illuminate the relationship of American modern art to European modernism; race and gender in American society, politics, and American national identity; patrons and dealers, including those of the Harlem Renaissance; the government as a patron for the visual arts; and the founding of major visual arts institutions and the solidifying of an art audience in the United States. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Prerequisites: ARTH 11A & 12A (C&I I and II), or one other ARTH course, or permission of instructor.* (5 units)

146. African-American Art

A survey of African-American art from the 18th to the 21st century. With an emphasis on case studies and movements throughout this history, this course explores how black artists in the United States have engaged with key issues such as race, gender, sexuality, class, and ethnicity. The course is

designed to expose students to complex debates about representation and the role of race and identity in American art. *Fulfills the Studio Art program modern or contemporary emphasis course requirement.* (5 units)

152. Arts of Ancient Mexico: From Olmec to Aztec

Survey of the arts of the Mesoamerican region, from the 1500 BCE to the conquest of 1521 CE. Focus on Mesoamerican concepts of time and space, the ritual calendar, warfare, blood sacrifice, shamanism, and the ballgame. *Fulfills the Studio Art program global emphasis course requirement. Formerly ARTH 151.* (5 units)

160. East-West Encounters in the Visual Arts

This course examines cross-cultural artistic encounters between the Western world (Europe and the United States) and Asia (India, China, and Japan) from the 16th through the 20th centuries, focusing in particular on Asian responses to the West. Topics may include the impact of Western realism on traditional Asian art forms, the role of commodities and empire in artistic production, Japonisme and Chinoiserie in 19th-century Europe and America, issues of cultural identity in Asian modernism, and post-World War II abstract art. *Fulfills the Studio Art program global emphasis course requirement. Not open to students who have taken Contact Zones: Arts East and West (ARTH 11A & 12A). Prerequisite: One lower-division ARTH course (ARTH 22, 23, or 26 suggested).* (5 units)

161. Photography in Japan

Exploration of Japanese photography from its origins in the 1850s to today, examining photography as an artistic medium and as a central part of modern and contemporary Japanese culture. Topics may include tourist photography, ethnographic photography, photography as propaganda, the development of the Japanese photobook, and gender issues in contemporary photography. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Prerequisite: One lower-division ARTH course (ARTH 23 or 26 suggested).* (5 units)

162. Visual Culture of Modern Japan

This course examines the visual culture of modern Japan circa 1850–1960, exploring issues of national and cultural identity and emphasizing in particular Japan's reaction to and engagement with the West. Topics may include Japanese adaptation of foreign artistic techniques and styles, the development of a national painting school, Japanese participation in World's Fairs, and the role of art in Japanese imperialism. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Prerequisite: One lower-division ARTH course (ARTH 23 or 26 suggested).* (5 units)

163. The Japanese Print

Ukiyo-e, or woodblock prints of the floating world, were an inherent part of the thriving urban culture of Edo-period Japan (1615–1868). Characterized by their vivid colors and lively designs, woodblock prints are perhaps the best known examples of Japanese visual art in the West. This course examines the genre within its cultural context, surveying not only traditional print subjects but also considering the development of woodblock prints into the 20th century and their relationship to other print media such as photography and lithography. Topics may include courtesan prints, Kabuki prints, the landscapes of Hiroshige and Hokusai, erotic prints, supernatural imagery, the creative print movement, and collectors of prints in the West. *Fulfills the Studio Art program global emphasis course requirement. Prerequisite: One lower-division ARTH course (ARTH 26 suggested).* (5 units)

164. Islamic Art, 600–1350 CE

Study of the art and architecture of the Islamic world with an emphasis on Jerusalem, Baghdad, Cairo, and Spain. Topics of discussion include the origin of Islam, mosque design and ornament, desert palaces, the Muslim reaction to classical antiquity, 1001 Arabian Nights, the transmission of Arab science and medicine to the West, manuscript illumination, and the decorative arts. *Fulfills the Studio Art program global emphasis course requirement. Prerequisites: Upper-division status and at least two other ARTH courses.* (5 units)

170. Art of the African Diaspora

An introduction to the art of the African Diaspora. The course uses visual culture as a means to explore the history and impact of the global spread of African peoples from slavery until the present day. The course examines a range of artistic practices from the visual culture of street festivals and Afro-Caribbean religions to the work of studio-trained artists of international repute. *Fulfills the Studio Art program global emphasis course requirement.* (5 units)

185. Post-Modern and Contemporary Art

An overview of significant issues and movements in art since the 1960s. Primary focus on art in the United States. Themes to be addressed: artist in nature, body in performance, new media, feminism, gender and sexuality, art in public places, censorship, art and public activism, emergence of global arts community. *Fulfills the Studio Art program modern or contemporary emphasis course requirement. Formerly ARTH 183.* (5 units)

193. Explore with Me Docent Program

The Explore with Me Docent Program is a museum internship in which students are trained to give public docent tours of the de Saisset Museum's temporary exhibitions. No previous knowledge of art history or experience with museums is required. As part of the curriculum, students will learn the necessary skills and information to provide thoughtful and engaging tours. They will be trained in Visual Thinking Strategies (VTS), a touring style that uses questions and interactive conversation to relay information about the objects on display. The program provides a great opportunity for students to gain professional experience working in the arts, to learn to speak comfortably and confidently about art, and to develop and improve public speaking skills. In addition to attending class sessions and completing short assignments, each docent is required to give three public tours as part of the course. *Students may enroll for up to two quarters to receive both lower- and upper-division credit. Prerequisite: ARTH 93.* (2 units)

194. Peer Educator in Art History

Peer educators in art history work closely with a faculty member to help individual students prepare for exams, conduct research, and master course content. *Prerequisite: Permission of instructor.* (1–2 units)

195. Art History Thesis

Students with a GPA of 3.5 or better in their major may petition to write a thesis, typically in their senior year. The thesis will be based on a research paper written for a previous upper-division course with the same instructor. *Prerequisites: Senior status, demonstrated excellence in the major field, and permission of instructor.* (5 units)

196. Senior Art History Capstone Seminar

Advanced research in art history. Research theme of the seminar will vary with instructor. Requirements include a lengthy research paper and public presentation of that research. *Restricted to art history majors. Course should be taken in the senior year. Prerequisite: ARTH 100.* (5 units)

197. Special Topics

Occasional courses in selected art historical topics. May be repeated for credit. (5 units)

198. Internship/Practicum

Individual projects in conjunction with professional visual arts agencies. May be repeated for credit. *Prerequisite: Written proposal must be approved by on-site supervisor, art history faculty member, and department chair.* (2–5 units)

199. Directed Reading/ Directed Research

Individual guided reading, research, and/or writing on selected art historical topics. May be repeated for credit. *Prerequisites: Course outline, reading list, and schedule of instructor/student meetings must be approved by art history faculty member and department chair 10 days prior to registration.* (1–5 units)

LOWER-DIVISION COURSES: STUDIO ART

30. Basic Drawing

Introduction to various drawing media and techniques. Covers the use of line and contour, light and shadow, three-dimensional perspective, and composition. Includes the concept of self-expression in traditional and contemporary drawing. *Recommended as a foundation course to be taken prior to other studio art courses.* (4 units)

32. Two-Dimensional Design

This course introduces the fundamental theories and applications of two-dimensional design, essential to a wide range of art forms. The focus is on experimentation with compositional dynamics and elements of design including line, shape, value, color, texture, direction; and principles of design such as balance, proportion, unity, rhythm, and emphasis. Projects will be contextualized by the analysis of historical and contemporary artists and the potential for visual communication to transmit meaning. Conceptual strategies, techniques, and a variety of materials are explored through lectures, demonstrations, studio assignments, and critiques. (4 units)

33. Three-Dimensional Design

This is a foundation course in three-dimensional design. Through the study of three-dimensional design principles and elements, students will develop an understanding of and an appreciation for the use of design fundamentals. Through various hands-on projects, students will explore principles of three-dimensional design: harmony, contrast/variety, rhythm/repetition, emphasis, continuity, balance, and proportion. They will also explore elements of three-dimensional design: space, line, plane, mass/volume, value, texture, and color. Conceptual strategies, techniques, and a variety of materials are explored through lectures, demonstrations, studio assignments, and critiques. (4 units)

35. Basic Printmaking

Fundamentals of printmaking as an art form. Printmaking is the method of making original images by printing from a handmade design onto fine art paper. Using a hand-cranked etching press, students will create art through basic printmaking techniques, such as relief, drypoint intaglio, and the painterly medium of monotype. *Previous experience in drawing recommended.* (4 units)

43. Basic Painting

Introduction to painting, primarily with water-based acrylic paints. Through guided projects, students will develop a language of lines, shapes, colors, and composition to express their ideas visually. (4 units)

46. Basic Watercolor

Introduction to visual expression in the classic medium of transparent watercolor. Assignments will emphasize basic elements of shape, color, light, shadow, and composition. *Previous experience in drawing recommended.* (4 units)

48. Basic Mixed Media Painting

This is a class in which some alternative materials and techniques are used to create final art works. Some of the elements that are usually covered in this course are collage, appropriation, stencils, transfers, Xerox copies, and assemblage. Some knowledge of paint techniques is helpful but not an absolute necessity. Beginners are welcome. The advanced section assumes some experience and familiarity with the techniques involved. (4 units)

50. Introduction to Black and White Film and Darkroom Photography

This course is for the lower-division student interested in learning the fundamentals of black-and-white photography as an art form. Students will learn basic film camera operation, film development, and darkroom printing techniques. Assignments will stimulate visual awareness and individual creativity. A 35 mm film camera with manual shutter speeds and aperture capabilities is suggested. (4 units)

57. Digital Photography

For lower-division students who want to develop creativity, composition, lighting, and other techniques with their digital cameras. Camera function and features will be discussed. Photographic projects will be edited and enhanced in Adobe Lightroom. Basic use of Adobe Photoshop will be introduced. Students must provide a digital camera with manual shutter speeds and aperture capabilities. (4 units)

63. Basic Ceramic Sculpture

Fundamentals of visual expression in clay, primarily through making ceramic sculpture. Especially suitable for the lower-division student. Guided exploration of various handbuilding techniques and materials, including firing and glazing. May also include other techniques. (4 units)

64. Basic Sculpture

Fundamentals of making art in three-dimensional form, especially suitable for the lower-division student. Creative exploration of selected materials and techniques. Reductive, manipulative, mold making, and additive methods will be used as needed. Media varies each quarter at instructor's discretion. (4 units)

71. Digital Print Making

Taught using a combination of lecture, discussion, and hands-on computer and traditional art practices. Activities include an introduction to art-making computer technology as it applies to traditional printmaking techniques. Students will create original designs on the computer, then hand-print them onto paper using a traditional etching press. Class presentations explore the societal impact of technology on the arts from the first printing press to computer output. *Previous experience in printmaking or computer arts recommended.* (4 units)

72. Introduction to Computer Arts and Design Theory

Taught using a combination of lecture, discussion, and hands-on computer art practices, this course explores basic design theory through various art-making methods on the computer. Projects focus on experimentation with elements of design (including line, shape, value, color, texture) and principles of design (such as balance, proportion, unity, rhythm, and emphasis). Class presentations provide an overview of the computer technologies that contribute to current studio art practices. (4 units)

74. Basic Computer Imaging

Hands-on introduction to computer imaging for the lower-division student. Fundamental instruction in raster and vector based imaging software to manipulate photographs and create original imagery. Exploration of both fine art and commercial uses of digital media. *Recommended as a foundation course to be taken prior to other computer art courses.* (4 units)

75. Basic Graphic Design

This course examines the fundamental theories and techniques of using computers as a tool to accomplish graphic design objectives. Topics include layout of type and graphics, and page design for print medium. We will also explore the impact of the computer medium upon the aesthetics of graphic design and society. Class projects include exploration of both fine art and commercial uses of digital media. *Prerequisite: ARTS 74 or 174, or permission instructor.* (4 units)

97. Special Projects

For lower-division students who wish to pursue an art topic not covered in the *Bulletin*, under the direction of a studio art faculty member. Students will have group meetings with the instructor to discuss their progress. *Open to majors or permission of instructor.* (4 units)

UPPER-DIVISION COURSES: STUDIO ART

131. Life Drawing

Theory and practice of figure drawing. Emphasis on understanding the anatomy of the human form as a resource for visual expression. May be repeated twice for credit. *Prerequisite: ARTS 30 or permission of instructor.* (5 units)

133. Intermediate Drawing

Continuation of ARTS 30 with an emphasis on the study of perspective and the anatomy of light and shadow as they relate to drawing three-dimensional forms. *Prerequisite: ARTS 30 or permission of instructor.* (5 units)

135. Printmaking

Continuation and extension of ARTS 35. Elaboration and refinement of fundamental printmaking techniques combined with more complex processes such as reduction relief cuts and chine collé. May be repeated twice for credit. (5 units)

143. Painting

This class builds upon the painting skills developed in Basic Painting. Emphasis is placed on developing a personal style through long term projects. *Basic Painting is recommended as a prerequisite or permission of instructor to enroll.* May be repeated twice for credit. (5 units)

144. Advanced Painting

Designed for the intermediate to advanced-level painting student. Assignments help students develop conceptual and formal strategies to create a series of related works that revolve around each student's individual artistic interests. Painting form and technique, as well as conceptual content and meaning, will be explored in depth, through practice and discussion. *Prerequisite: ARTS 43 or 143, or permission of instructor.* (5 units)

146. Watercolor

A continuation of the skills acquired in Basic Watercolor with the emphasis on development of a personal approach to the medium. *Prerequisite: One course from ARTS 30, 43, or 46, or permission of instructor.* (5 units)

148. Mixed Media Painting

An intermediate-level course exploring the theory and practice of combining painting with other artistic elements to create primarily two-dimensional works. With the instructor's supervision, projects may incorporate unusual surfaces, small objects, fragments of other artwork, or text. May be repeated twice for credit. *Prerequisite: One painting or drawing course.* (5 units)

150. Introduction to Black and White Film and Darkroom Photography

This course is for the upper-division student interested in learning the fundamentals of black-and-white photography as an art form. Students will learn basic film camera operation, film development, and darkroom printing techniques. Assignments will stimulate visual awareness and individual creativity. A 35 mm film camera with manual shutter speeds and aperture capabilities is suggested. May be repeated twice for credit. (5 units)

151. Exploring Society through Photography

For the intermediate-level photography student interested in exploring social issues through the use of photography. This course has an emphasis on portrait photography and ethics in photography. Students will also engage with individuals in our community creating a photo-based project. May be repeated twice for credit. *Note: This course requires participation in community-based learning (CBL) experiences off campus and meets the ELSJ requirement. Prerequisite: One course from ARTS 50, 57, 150, or 157, or permission of instructor.* (5 units)

154. Intermediate Film Photography

The art and craft of black-and-white photography beyond the basic level. Covers the use of fiber-based papers and archival print processing in the darkroom. Students will also learn basic studio lighting techniques. Includes discussion of photography as it relates to contemporary fine art theory and practice. May be repeated twice for credit. *Prerequisite: ARTS 50 or 150, or permission of instructor.* (5 units)

155. Photography on Location

This course is designed for an intermediate photography student interested in exploring the physical world we live in through photographic field trips, and projects. Includes discussion of contemporary photographic concepts and practice, and visits to local art museums and galleries. May be repeated twice for credit. *Prerequisite: One course from ARTS 50, 57, 150, 151, or 157, or permission of instructor.* (5 units)

156. Photography and Alternative Processes

This course provides intermediate- to advanced-level photography student an opportunity to learn alternative ways of making photographs and photo-based art. Students will learn and experiment with non-silver photography processes such as Cyanotypes, Vandyke, and Gum Bichromate. Alternative cameras and nontraditional printing methods will also be introduced. *Prerequisite: One course from ARTS 50, 57, 150, or 157, or permission of instructor.* (5 units)

157. Digital Photography

For upper-division students who want to develop creativity, composition, lighting, and other techniques with their digital cameras. Camera function and features will be discussed. Photographic projects will be edited and enhanced in Adobe Lightroom. Basic use of Adobe Photoshop will be introduced. Students must provide a digital camera with manual shutter speeds and aperture capabilities. (5 units)

158. Intermediate Digital Photography

This course will provide all the skills necessary to make fine art inkjet prints from digital files. Students will learn intermediate techniques in digital capture, processing of digital images using Adobe Photoshop, and output using pigmented inkjet printers. Students should have a digital SLR camera capable of shooting in RAW format. May be repeated twice for credit. *Prerequisite: ARTS 57 or 157, or permission of instructor.* (5 units)

163. Ceramic Sculpture

Continuation and extension of ARTS 63. Fundamentals of visual expression in clay, primarily through making ceramic sculpture. Also appropriate for the upper-division student who wishes to explore various hand-building techniques and materials, including firing and glazing. Students will construct projects of a slightly larger scale than ARTS 63 students. May be repeated twice for credit. (5 units)

164. Sculpture

Continuation and extension of ARTS 64. Also appropriate for the upper-division student who wants to learn the fundamentals of sculpture as an art form. Creative exploration of selected materials and techniques. Reductive, manipulative, mold making, and additive methods will be used as needed. Media varies each quarter at instructor's discretion. May be repeated twice for credit. (5 units)

165. Advanced Ceramics

Suitable for the intermediate and advanced student. In-depth exploration of various hand-building techniques for creating ceramic sculpture and related work. Includes discussion of aesthetic issues in contemporary ceramic art. Emphasis will be on the development of each student's artistic and technical interests and abilities, toward the goal of creating an individual collection of works. May be repeated twice for credit. *Prerequisite: ARTS 63 or 163, or permission of instructor.* (5 units)

171. Printmaking with a Digital Toolbox

Advanced projects in digital printmaking. Students generate their designs using imaging software then create hand-pulled prints using traditional printmaking methods such as stencil, intaglio, lithography, and relief. *Prerequisite: One course from ARTS 35 or 74 or 174, or permission of instructor.* (5 units)

173. Introduction to 3D Animation & Modeling/Modeling & Control Rigid Body Dynamics

Mathematical and physical principles of motion of rigid bodies, including movement, acceleration, inertia, and collision. Modeling of rigid body dynamics for three-dimensional graphic simulation; controlling the motion of rigid bodies in robotic applications. May be repeated twice for credit. *Open to majors or permission of instructor. Also listed as COEN 165.* (5 units)

174. Computer Imaging

Continuation and extension of ARTS 74. Students create original, digital artwork through comprehensive assignments using raster and vector-based software. May be repeated twice for credit. (5 units)

175. Graphic Design

Continuation and extension of ARTS 75. Students accomplish graphic design objectives through comprehensive projects. May be repeated twice for credit. *Prerequisite: One course from ARTS 74 or 75 or 174, or permission of instructor.* (5 units)

176. Advanced Computer Imaging

Designed for the intermediate- to advanced-level digital imaging student. Assignments help students develop conceptual and formal strategies to create a series of related works that center around each student's individual artistic interests. Raster- and vector-based imaging techniques, as well as conceptual content and meaning, will be explored in depth through practice and discussion. *Prerequisite: ARTS 74 or 174, or permission of instructor.* (5 units)

177. Website Graphic Design

An intermediate course in the design process of aesthetically developing websites. Theoretical discussions of user interface design and the creation of graphical navigation systems. Students will focus on research, typography, layout, hierarchy, and branding to visually communicate a concept developed for Web media. *Prerequisite: One course from ARTS 74, 75, 174, or 175, or permission of instructor.* (5 units)

178. Advanced Graphic Design

In-depth exploration of graphic design through advanced projects. Students will concentrate on the use of professional templates and guidelines to explore both the fine art and commercial uses of digital media within graphic design. Experimentation and creative play through advanced applications and practices. May be repeated twice for credit. *Prerequisite: ARTS 75 or 175, or permission of instructor.* (5 units)

179. Introduction to Two-Dimensional Animation

In-depth exploration of two-dimensional animation and digital storytelling. Students create storyboards, flipbooks, and vector/-raster based animation. May be repeated twice for credit. *Prerequisite: One course from ARTS 74, 75, 174, or 175, or permission of instructor.* (5 units)

180. Advanced Graphic Design Production

In-depth exploration of graphic design through advanced projects. This class will explore both the fine art and commercial uses of digital media within graphic design. Students will concentrate on engineering professional templates to create complex projects that focus on package design, interactive publications, and advanced design materials. The class fosters experimentation through advanced applications and practices. May be repeated twice for credit. *Prerequisite: One course from ARTS 74, 75, 174, or 175, or permission of instructor.* (5 units)

181. Digital Illustration and Design Theory

In-depth exploration of two-dimensional design and practice through the use of vector-based software. This class covers basic design theory, which is applicable and fundamental to all two-dimensional mediums. Students will focus on complex illustration practices and techniques specific to vector-based software. *Prerequisite: ARTS 74 or 174, or permission of instructor.* (5 units)

194. Peer Educator in Studio Art

Peer educators in studio artwork closely with a faculty member to help individual students in studio arts courses with the proper use of tools and materials, as well as mastering course content. Peer educators will encourage students in their creative work in both individual and collaborative activities. *Prerequisite: Permission of instructor.* (1–2 units)

196A. Studio Art Seminar

Exploration of and preparation for primarily academic postgraduate options in studio art. Includes portfolio and presentation development; artist statements and résumé writing; photographing artwork; and field trips to studios of artists, designers, and graduate schools. *Required for studio art majors, recommended in junior year.* (5 units)

196B. Capstone Senior Exhibit

Senior studio art majors will sign up for an independent study course with a faculty member. The faculty member will advise and direct the student through the process of installation and presentation of their senior exhibit. Students will work directly with the instructor to design and edit their exhibits. Grading considerations include quality of the exhibition, the quality of the presentation (display, hanging, etc.), professional conduct, and the associated artist statement. *Required for studio art majors. Must be taken during the quarter of the senior exhibit, normally spring quarter. Prerequisite: ARTS 196A.* (2 units)

197. Special Projects

This course is for advanced students who wish to pursue an art project not covered by courses in this *Bulletin*, under the direction of a studio art faculty member. Students will have group meetings to discuss progress with one another and with faculty member. May be repeated twice for credit. *Open to majors or permission of instructor.* (1–5 units)

198. Internship/Practicum

Individual projects in conjunction with a professional visual arts organization. May be repeated twice for credit. *Prerequisite: Written proposal must be approved by supervisory studio art faculty member and department chair.* (1–5 units)

199. Directed Research/Creative Project

Tutorial work in studio art. May be repeated for credit, but no more than 5 units will count toward the major. *Prerequisite: Course outline and schedule of instructor/student meetings must be approved by studio art faculty member and department chair 10 days prior to registration.* (1–5 units)

DEPARTMENT OF BIOLOGY

Professors Emeriti: William R. Eisinger, Thomas N. Fast, John S. Mooring, Dennis R. Parnell, S.J.
Professors: Elizabeth P. Dahlhoff (*Department Chair*), Janice Edgerly-Rooks, Craig M. Stephens
Associate Professors: James L. Grainger, David C. Hess, Ángel L. Islas, Leilani M. Miller, David L. Tauck, Justen Whittall
Assistant Professors: Jessica R. Lucas, Katherine Saxton
Lecturers: Dawn Hart, Teresa Ruscetti, Christelle Sabatier

The Department of Biology offers a program leading to the bachelor of science degree. The major provides students a broad background in biology, while allowing the opportunity to explore particular areas of biology in greater depth. The biology major serves as a strong foundation for graduate, medical, or professional studies, as well as for careers in teaching, research, and business. Most courses emphasize laboratory or field work, and students are also encouraged to work with faculty on research projects. Minor degrees in biology and related disciplines (biotechnology, biomedical engineering, and environmental studies) are available. The Biology Department also offers courses that satisfy the Natural Science and Science, Technology & Society requirements of the Core Curriculum, which are available to all University students who are curious about the nature of life. Numerous study abroad opportunities in the life sciences, both for biology majors and non-majors, are available through the Study Abroad office. Most faculty members involve students in their research programs. Qualified students can obtain course credit for research by enrolling in BIOL 195.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in biology must complete the following departmental requirements:

- BIOL 21, 22, 23, 24, 25
- CHEM 11, 12, 13, 31, and 32 (CHEM 33 suggested)
- PHYS 11, 12, 13 or PHYS 31, 32, 33
- MATH 11, 12
- BIOL 101
- Seven approved upper-division biology courses, including five with laboratory.

Five of the seven upper-division courses must be from one of three areas of emphasis: a) biomedical sciences, b) cellular and molecular biology, or c) ecology and evolution. Students who desire to approach their upper-division studies in a manner that is not well-represented by these emphases may develop an integrative biology plan for upper-division coursework by organizing a coherent series of courses with their academic advisor.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in Biology:

- Successful completion of Biology 23 or Biology 25.
- Three upper-division biology courses, including two with a laboratory component.

Minors in Related Areas

Biotechnology Minor is designed for students interested in gaining insight into the science underlying biotechnology, exploring its potential for the future, and obtaining practical experience in laboratory techniques used in biotechnology research and its applications. See the Interdisciplinary Minors and Other Programs of Study section at the end of this chapter for details.

Environmental Studies Minor provides an opportunity for students to focus on environmental issues through a variety of academic approaches in the humanities, social and natural sciences, engineering, and law. See the Department of Environmental Studies and Sciences section in this chapter for details.

Biomedical Engineering Minor is designed primarily for science majors in the College of Arts and Sciences. This minor could be a valuable asset for science majors interested in biomedical research and/or health-related careers, including those completing prerequisites for medical school and other health-related professional schools. See Chapter 5, School of Engineering, for details.

Public Health Minor is designed for students interested in population-level analysis of health issues, and the causes and consequences of disease. See the Public Health Program section in this chapter for details.

PREPARATION IN BIOLOGY FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach biology in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. Students who are contemplating secondary school teaching in biology should consult with the coordinator in the Department of Biology as early as possible. The secondary teaching credential requires the completion of an approved credential program that can be completed as a fifth year of study and student teaching, or internship.

LOWER-DIVISION COURSES

3. Fitness Physiology L&L

Although many people rarely engage in vigorous exercise, as a species we evolved to perform prolonged, strenuous activity. This course surveys how exercise promotes a state of wellness and explores both the immediate responses to exercise as well as how the body responds to long-term training programs. In addition to learning basic human physiology, at the end of the course students should be able to critique and design experiments, understand and interpret reports of health and exercise news in the popular press, critically evaluate fitness claims made by advertisers, and recognize quackery. Laboratory 15 hours. (4 units)

5. Endangered Ecosystems L&L

An overview of earth's ecosystems and the major factors contributing to the loss of biodiversity. Three major themes: (1) general ecological principles, especially focused on the structure and function of ecosystems; (2) factors contributing to the endangerment of ecosystems; and (3) the conservation of ecosystems and biodiversity. Global environmental problems, including several lectures highlighting current environmental and conservation issues here in California and within the San Francisco Bay Area. Laboratory 15 hours. Saturday field trips are required. (4 units)

6. Oceans L&L

Examination of major ocean ecosystems and their inhabitants, with special attention paid to issues of governmental policy, sustainability, and human impacts on marine ecosystems. Laboratory and field activities will emphasize hands-on exploration of local marine habitats. Laboratory 15 hours. Saturday field trips are required. (4 units)

18. Exploring Biotechnology L&L

Have you ever wondered about the science behind CSI, "Frankenfoods," human cloning, or how biofuels might help combat global warming? This course will examine the science underlying biotechnology: how DNA, genes, and cells work, and how they can be used in new technologies that affect many areas of our lives, including medical diagnosis and treatment, forensics, agriculture, and energy. We will discuss current developments in biotechnology and also examine the controversies and ethical considerations that accompany them. Laboratory experiments will focus on hypothesis testing and experimental design, and include creating glow-in-the-dark bacteria, detecting viruses, performing human genetic testing, and testing common foods for genetic modification. Laboratory 15 hours. (4 units)

21. Introduction to Physiology

Introduction to the physiology of multi-cellular organisms. Course will investigate how organisms are put together at the cellular level and how multi-cellular organisms maintain homeostasis despite a challenging and changing environment. Course focuses on four problems organisms have to solve: transport; maintaining water and ion balance; obtaining and processing energy; information exchange. Concurrent enrollment in a discussion section is mandatory. *Prerequisite: Completion of, or concurrent enrollment in, CHEM 11.* (4 units)

22. Introduction to Evolution and Ecology

Introduction to key concepts in evolution and ecology, including Mendelian and population genetics, natural selection and adaptation, phylogenetics and biodiversity, demography, and interactions among organisms and their environments. Concurrent enrollment in a discussion section is mandatory. *Prerequisites: BIOL 21 and completion of, or concurrent enrollment in, CHEM 12.* (4 units)

23. Investigations in Evolution and Ecology L&L

Introduction to experimental and statistical approaches used in modern ecological and evolutionary studies, with an emphasis on experimental design, data analysis, interpretation, and presentation. Builds on concepts presented in BIOL 22. Fieldwork and laboratory exercises (30 hours) will take advantage of the diversity of local terrestrial and marine ecosystems. *Prerequisites: BIOL 22 and completion of, or concurrent enrollment in, CHEM 13.* (5 units)

24. Introduction to Cellular and Molecular Biology

An introduction to the cell and molecular fundamentals necessary for life. Topics include macromolecular structure, enzyme function, membrane structure and physiology, metabolism, bioenergetics, the cell

cycle, and DNA replication, transcription, and translation. Concurrent enrollment in a discussion section is mandatory. *Prerequisites: BIOL 21 and completion of, or concurrent enrollment in, CHEM 31.* (4 units)

25. Investigations in Cellular and Molecular Biology L&L

An introduction to experimental methods for studying the cellular and molecular basis of life. Builds on the concepts covered in BIOL 24. Topics include enzyme function and kinetics, cell reproduction, Mendelian and molecular genetics, and molecular biology. The topics are explored through laboratory work, with emphasis placed on the analysis, interpretation, and presentation of experimental data. Laboratory 30 hours. *Prerequisites: BIOL 24 and completion of, or concurrent enrollment in, CHEM 32.* (5 units)

UPPER-DIVISION COURSES

101. Biology Research Seminar

A forum for the exploration of research in the life sciences. Invited scientists from a range of universities, institutes, and the private sector present their current research, and engage in discussion about this research with seminar participants. This course is intended to give students direct interactions with research academics in a range of fields, to make them aware of career opportunities and to provide them with contacts in those fields. Graded P/NP only. *Prerequisite: Successful completion of BIOL 23 or 25.* (2 units)

104. Human Anatomy L&L

An exploration of the structure, organization, and functional relationships of human anatomical systems. (Laboratory dissections use non-human vertebrates.) Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

106. Health Consequences of a Western Lifestyle

This course explores the impact of living in a developed country on human health. Topics such as diabetes, obesity, heart disease, hypertension, and cancer will be discussed at the molecular, cellular, physiological, and population levels. *Prerequisite: BIOL 25. Also listed as PHSC 124.* (5 units)

109. Genetics and Society

Upper-division course designed for non-science majors interested in exploring the interplay between the social, scientific, and technological dimensions of human genetics. In addition to studying the nature of DNA (the genetic material), students will study the social and technological dimensions of current topics in genetics, including the Human Genome Project, paternity testing, crime scene investigation, embryo testing to select specific genotypes, personalized medicine, evolution, etc. *Fulfills the Science, Technology & Society component of the Undergraduate Core Curriculum. Does not satisfy requirements of the Biology major.* (5 units)

110. Genetics L&L

Basic principles governing inheritance and gene expression in viruses, prokaryotes, and eukaryotes. Emphasis on molecular aspects. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

113. Microbiology L&L

An introduction to the biology of microorganisms, with emphasis on the molecular and cellular biology of bacteria, the diversity of microbial life, and the roles of microorganisms in human health and disease. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

114. Immunology L&L

Principles, mechanisms, and techniques of humoral and cellular aspects of the immune response. Immediate and delayed hypersensitivity, tissue transplantation, tumor immunology, and immunodeficient states in humans. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

115. Human Reproduction and Development L&L

Detailed study of the development and function of the male and female reproductive systems, gametogenesis, fertilization and implantation, and the anatomy of the heart, circulatory, nervous, and skeletal systems during embryogenesis. Where appropriate, the molecular mechanisms controlling the determination of these developing systems will be examined. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

116. Medical Microbiology L&L

This course focuses on the interactions of pathogenic microbes (bacteria, viruses, fungi, prions, etc.) with their hosts. The various strategies employed by the infectious agents to subvert the immune system and the various strategies used by the immune system to combat the microbial invasion will be examined, as will the co-evolution of hosts and their pathogens and the natural history of diseases. The laboratory component will expose students to clinical methodologies and scientific approaches to diagnose and differentiate pathogenic microorganisms. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

117. Epidemiology L&L

This course provides an introduction to epidemiology, including assessment of health and disease in populations, epidemiological data analysis, disease transmission, and public health interventions. The course also exposes students to the epidemiology of diseases and conditions of current public health and clinical importance in the United States and internationally. The laboratory (computer lab) will provide students with hands-on experience with epidemiologic methods, study design, and data analysis. Laboratory 30 hours. *Also listed as PHSC 100. Prerequisite: BIOL 25.* (5 units)

119. Biology of Stress

This course explores the impact of stress on physiology, behavior, and health, using a multidisciplinary approach. Topics include defining and measuring stress, differences between acute and chronic stress exposure, effects of stress on physiological processes and on the brain, how stress affects gene expression and neurogenesis, and relationships between stress and disease. We will also discuss the social patterning of stress exposure and the effects of social policies and interventions. *Prerequisite: BIOL 24.* (5 units)

120. Animal Physiology L&L

This course examines contrasting strategies used by different animals to deal with variations in temperature, food, oxygen, and water, and highlights the diversity of physiological adaptations in major animal groups, especially those living in "extreme" habitats. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units).

122. Neurobiology L&L

Study of the molecular basis of neurobiology: how the nervous system is structured, how neurons form connections and relay information between each other, and how specific components of the nervous system function together to perceive the environment around us. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

124. Human Physiology L&L

Examining the physical and chemical basis of human life, this course focuses on the neural and endocrine control of physiologic processes to maintain homeostasis. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

128. Plant Development L&L

This course explores the processes of RNA and protein regulation, epigenetics, and "omics" based scientific approaches, phenomena that will be discussed within the context of plant development. Similarities and salient differences among and/or between plants, animals, and microbes will be described as appropriate. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

134. California Plant Diversity L&L

Surveys the major angiosperm families in California, relies heavily on using taxonomic keys to identify California plants to species, and investigates evolutionary patterns characteristic of the California flora through a combination of lab and substantial field experiences. Laboratory and field work 30 hours. *Prerequisite: BIOL 23.* (5 units)

135. Biofuels

Human use of fossil fuels is contributing greatly to global climate change. Could biologically based fuels be important climate-neutral energy sources for the future? This course will explore the biology and technology of diverse biofuels, their potential environmental benefits and pitfalls, and the economic and political issues surrounding them in the United States, Europe, and developing nations. *Fulfills the Science, Technology & Society component of the Undergraduate Core Curriculum. Does not satisfy requirements of the Biology major.* (5 units)

145. Virology

Examines the biology of viruses including their structure, evolutionary origins, classification, genetics, laboratory propagation and diagnostic methods, viral pathogenesis, response of host cells to viral infection, and salient aspects of the epidemiology of viral diseases. The course will focus on viruses that infect eukaryotic cells, emphasizing important viral groups that infect humans. *Prerequisite: BIOL 25.* (5 units)

151. Restoration Ecology L&L

The science and practice of restoring degraded ecosystems, with an emphasis on plant ecology. Through fieldwork in restoration experiments and examination of literature case studies, students will grapple with basic questions: How do we decide what to restore? How do we restore it? And how do we know if we're finished? Emphasis on reading and writing scientific papers, working with data, and critically judging the success of restoration projects in meeting goals of biodiversity and ecosystem function. Laboratory and field work 30 hours. *Also listed as ENVS 151. Prerequisite: BIOL 23.* (5 units)

153. Conservation Science

Conservation is a scientific enterprise and a social movement that seeks to protect nature, including Earth's animals, plants, and ecosystems. Conservation science applies principles from ecology, population genetics, economics, political science, and other natural and social sciences to manage and protect the natural world. Conservation is all too often seen as being at odds with human well-being and economic development. This course explores the scientific foundations of conservation while highlighting strategies to better connect conservation with the needs of a growing human population. We will examine whether conservation can protect nature, not *from* people, but *for* people. *Also listed as ENVS 153. Prerequisite: BIOL 23.* (5 units)

156. General Ecology L&L

Quantitative study of the interrelationships of organisms with their biotic and abiotic environments. Emphasis on population dynamics, interspecific relationships, community structure, and ecosystem processes. Laboratory and field work 30 hours, including one weekend field trip. *Also listed as ENVS 156. Prerequisites: BIOL 23 and MATH 11.* (5 units)

158. Biology of Insects L&L

An introduction to basic and applied aspects of insect biology, with emphasis on evolution, morphology, physiology, and behavior of insects and related arthropods. Also includes a review of important agricultural, medical, forestry, and veterinary pests. Laboratory and field work 30 hours, including an overnight field trip and optional trips to nearby ecosystems. *Prerequisite: BIOL 23.* (5 units)

160. Biostatistics L&L

A course in applied statistics for biologists and environmental scientists planning to conduct manipulative experiments. Students gain training in experimental design, quantitative analysis, and hypothesis testing. Theory and concepts are covered in lectures and readings. Laboratory sessions provide practical experience in computing statistical procedures by hand and with statistical software. Examples used in lectures and lab assignments are derived from medical research, physiology, genetics, ecology, and environmental risk assessment. Laboratory 30 hours. *Also listed as ENVS 110. Prerequisite: BIOL 23.* (5 units)

165. Animal Behavior L&L

Examination of the behavior of animals in nature using an organizational scheme that recognizes proximate, or immediate, causes of behavior and evolutionary bases for behavior. Topics include physiological correlates of behavior, perception of natural stimuli (light, sound, chemicals), and behavioral ecology of foraging, mating systems, parent-offspring relationships, and social behavior. Laboratory 30 hours. *Prerequisite: BIOL 23.* (5 units)

171. Ethical Issues in Biotechnology and Genetics

An interdisciplinary consideration of contemporary biotechnology, and the ethical implications inherent in the development and use of such technology. Topics include human cloning, stem cell research, human genome project, genetic testing, gene therapy, genetically modified organisms, personalized medicine, clinical trials, and public policy. *BIOL 171 satisfies a biotechnology minor requirement but NOT the ethics requirement. When taken concurrently with BIOL 189, it satisfies an upper-division biology major requirement. It also fulfills the third Religious Studies requirement. Prerequisite: BIOL 25.* (5 units)

173. Evolution L&L

Examination of advanced concepts of modern evolutionary biology. Topics include the evolutionary forces of microevolution, the evolution of sex, adaptation, speciation, human evolution, molecular evolution, and macroevolutionary phenomena deciphered from phylogenetic trees. Laboratory (30 hours) includes bench experiments, field study and computational activities. *Prerequisite: BIOL 25;. BIOL 110 recommended.* (5 units)

174. Cell Biology L&L

Study of the function of cellular organelles and the signaling pathways that control cell reproduction. Topics include a detailed discussion of the structure of cell membranes, nuclear and chromosome structure, DNA replication, the microtubule and microfilament cytoskeleton, mitosis, mechanisms of cell motility, cell cycle regulation, and apoptosis. Laboratory experiments focus on cell cycle regulation and cell differentiation. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

175. Molecular Biology L&L

An introduction to the maintenance and flow of genetic information at the level of protein-nucleic acid interactions. Lectures focus on basic molecular biology concepts and recombinant DNA technology. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

176. Biotechnology Laboratory—Recombinant DNA Technology or Systems Biology L&L

Research topics vary from year to year. Laboratory meets twice each week. Lectures discuss the scientific basis for the lab methods, and their application in biomedical research and the biotechnology industry. Laboratory 60 hours. *Prerequisites: BIOL 25 and at least one upper-division cell and molecular biology laboratory class. BIOL 175 recommended.* (5 units)

177. Biotechnology Laboratory—Gene Expression and Protein Purification L&L

Explores principles and techniques for expression and purification of recombinant proteins. Laboratory meets twice each week and will use techniques such as column chromatography, mammalian tissue culture, and various gene expression systems. Lectures discuss the theory behind the methods used in lab, as well as their application in basic and applied research. Laboratory 60 hours. *Prerequisites: BIOL 25 and at least one upper-division cell and molecular biology laboratory class. BIOL 175 recommended.* (5 units)

178. Bioinformatics L&L

Bioinformatics tools are important for storing, searching, and analyzing macromolecular sequences and structures. This course in applied bioinformatics provides an in-depth survey of modern bioinformatics tools. Students will become proficient at searching GenBank, downloading and analyzing sequences, and working with metadata. Each student will write an original computer program to complete an independent research project. Software tools for functional and evolutionary analysis of nucleic acids and proteins will also be examined. Laboratory 30 hours. *Prerequisite: BIOL 25. BIOL 175 recommended.* (5 units)

179. Cancer Biology

Introduction to the molecular and cellular basis of cancer. Introduction to the pathology of cancer. How basic processes such as cell growth, cell cycle control, and cell death are affected by molecular changes in oncogenes and tumor-suppressor genes. *Prerequisite: BIOL 25.* (5 units)

180. Marine Ecology L&L

Quantitative study of the ecology of marine organisms, with an emphasis on population dynamics, interspecific relationships, community structure, and ecosystem processes. Also examines principles of oceanography, biology, and ocean ecology, focusing on organisms and ecosystems of coastal California. Laboratory and field work 30 hours. *Prerequisite: BIOL 23.* (5 units)

189. Topics in Cell and Molecular Biology

Seminar dealing with contemporary research in cellular and molecular biology and biotechnology. Students are required to lead discussions and participate in critical analyses of recently published research articles. BIOL 189 may be taken up to two times for credit. *Does NOT count as an upper-division course toward a major or minor in biology, but allows BIOL 171 to count as an upper-division biology course for the biology major or minor when BIOL 189 and BIOL 171 are taken during the same quarter. Prerequisites: BIOL 25 and concurrent enrollment in BIOL 110, 113, 171, 174, or 175.* (3 units)

191. Project Lab

Project lab is an intensive, research-oriented course where students conduct projects directly related to ongoing studies in the professor's laboratory. The class will use modern, cutting edge research approaches and will emphasize critical thinking, experimental design, and scientific communication. Research topics vary from year to year. Laboratory 60 hours. *Prerequisites: BIOL 25 and at least one upper-division laboratory course.* (5 units)

195. Undergraduate Research

Experimental research project supervised by Biology Department faculty. Five hours of research per week is expected per unit. Maximum of 3 units per quarter. Can be repeated for credit, with a maximum of 5 units per academic year. Must be taken P/NP. *Prerequisite: Consent of instructor.* (1–5 units)

198. Internship and Undergraduate Research

Students wishing to take either 198A or 198B should have a GPA of 3.0 or better in biology and must present an outline of their projected research to the chair not later than the fifth week of the term preceding the start of the project. *Prerequisite: Departmental and University permission.* (1–5 units)

198A. Internship

Research in off-campus programs under the direct guidance of cooperating research scientists and faculty advisors. (1–5 units)

198B. Research

Supervised laboratory research culminating in a written report suitable for publication. Sustained for one year with credit given for one term. *Students completing a total of 5 units with a single instructor fulfill one upper-division laboratory requirement toward the major but do not satisfy an emphasis requirement.* (1–5 units)

199. Directed Reading and Research

Detailed investigation of a specific topic in biology under the close direction of a faculty member. Students wishing to take this course should have a GPA of 3.0 or better in biology and must present an outline of their projected research to the department chair no later than the fifth week of the term preceding the start of the project, which will continue for one term only. *Prerequisite: Departmental and University permission.* (1–5 units)

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

Professors Emeriti: Lawrence C. Nathan, Robert J. Pfeiffer
Professors: Michael R. Carrasco (*Department Chair*), John C. Gilbert, Patrick E. Hoggard, Dennis C. Jacobs, Deborah Tahmassebi, W. Atom Yee
Associate Professors: Linda S. Brunauer, Amelia Fuller, Brian J. McNelis, Amy M. Shachter, Steven W. Suljak
Assistant Professors: Paul E. Abbyad, Grace Stokes (*Clare Boothe Luce Professor*), Korin E. Wheeler
Senior Lecturer: Steven L. Fedder
Lecturer: Stephen Reaney

The Department of Chemistry and Biochemistry offers three baccalaureate degrees: the bachelor of science in chemistry, the bachelor of science in biochemistry, and the bachelor of arts in chemistry. The curriculum is accredited by the American Chemical Society (ACS), the professional organization for chemistry. The program prepares students for further work in chemistry or biochemistry, either in graduate school or as professional chemists. In addition, a chemistry or biochemistry degree is excellent preparation for careers in medicine, dentistry, law, engineering, business, and teaching. A minor in chemistry is also available.

All bachelor of science degrees provide graduates with the background necessary to begin a career in chemistry or biochemistry at industrial and governmental laboratories, for admission to institutions offering graduate degrees in chemistry and biochemistry, and for admission to medical and dental schools as well as other professional programs in the health professions. The chemistry major provides equal training in all the disciplines in chemistry, and the biochemistry major combines training in chemistry with additional coursework in cell and molecular biology. The bachelor of science-ACS certified degrees meet all recommended standards for chemists and biochemists as mandated by the ACS.

The bachelor of arts degree allows students the most freedom in choosing electives, and therefore is an excellent program for pre-medical or pre-teaching students. Students with a strong interest in the liberal arts or who wish to pursue subjects outside the standard science curriculum will benefit from this degree. The bachelor of arts degree can be effectively combined with a pre-law or business curriculum to provide excellent preparation for law or business careers in the technology sector.

Undergraduate research is a critical component of our degrees and most of our majors conduct research in collaboration with faculty mentors. Research in the department has been funded by the National Institutes of Health, the National Science Foundation, the Howard Hughes Medical Institute, the American Chemical Society Petroleum Research Fund, the Dreyfus Foundation, and the Research Corporation. Majors in chemistry, biochemistry, biology, and public health science participate in faculty research projects through CHEM 182, 183, and 184. In addition, advanced students have opportunities for part-time employment assisting faculty in laboratory and related teaching activities.

The chemistry and biochemistry curricula are designed to be flexible in the sequence of upper-division coursework so as to allow students to participate in study abroad programs. Students interested in study abroad should meet with a faculty advisor to plan the junior and senior year courses as early as possible in their academic careers.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science or bachelor of arts degrees, students majoring in chemistry and biochemistry must complete the following departmental requirements for each degree option:

Bachelor of Science in Chemistry

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 102, 111, 141, 151, 152, 154
- Three upper-division chemistry electives, not including CHEM 182
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 11, 12, 13 or PHYS 31, 32, 33

Bachelor of Science in Chemistry—ACS Certified

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 102, 111, 141, 150, 151, 152, 154
- CHEM 183, 184
- Two upper-division chemistry electives, not including CHEM 182
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33

Bachelor of Science in Biochemistry

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 101, 111, 141, 142, 143, 150, 151 or 152
- Two additional upper-division chemistry electives, not including CHEM 182; BIOL 110, 113, 174, or 176 may be taken to satisfy one of these two electives
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 11, 12, 13 or PHYS 31, 32, 33
- BIOL 21, 24, 25, 175

Bachelor of Science in Biochemistry—ACS Certified

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 101, 111, 141, 142, 143, 150, 151 or 152, 154
- CHEM 183, 184
- Two additional upper-division chemistry electives; BIOL 110, 113, 174, or 176 may be taken to satisfy one of these two electives
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33
- BIOL 21, 24, 25, 175

Bachelor of Arts in Chemistry

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 101 or 102, 111, 141, and 150 or 151 or 152
- Two additional upper-division chemistry electives, not including CHEM 182
- Upper-division lab requirement: 30 hours, which can be satisfied by CHEM 102, 143, 154, or 1 unit of CHEM 182
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 11, 12, 13 or PHYS 31, 32, 33

Electives for all degrees can be fulfilled by taking any upper-division chemistry or biochemistry class of 3 units or more, including CHEM 183 and 184.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in chemistry:

- CHEM 11, 12, 13, 31, 32, and 33
- 15 units of upper-division chemistry courses, not including CHEM 115 and CHEM 182

PREPARATION IN CHEMISTRY FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach chemistry in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. The secondary teaching credential requires the completion of an approved credential program that can be completed as a fifth year of study and student teaching, or through an undergraduate summer program and internship. Students who are contemplating secondary school teaching in chemistry should consult with the coordinator in the Department of Chemistry and Biochemistry as early as possible.

LOWER-DIVISION COURSES

Note: No course offered by the Department of Chemistry and Biochemistry is subject to challenge, i.e., to fulfillment by a special examination.

1. Chemistry and the Environment

A survey of the role of chemistry in major environmental issues such as global warming, acid rain, ozone depletion, photochemical smog, persistent organic pollutants, fossil fuel, nuclear and renewable energy, recycling and environmental fate of pollutants. Laboratory 3 hours every other week. Students with prior credit for CHEM 11 can enroll only on a pass/no pass (P/NP) basis. (4 units)

5. Chemistry: An Experimental Science

A survey of modern chemical applications, including applications to health, the environment, and consumer issues, and an introduction to the scientific method of inquiry. Laboratory 3 hours every other week. *Cannot be taken by students with prior credit for CHEM 11 or 19.* (4 units)

11. General Chemistry I

Topics include chemical properties and reactions, thermochemistry, stoichiometry, quantitative problem-solving, and an introduction to ionic and covalent chemical bonding. Laboratory 3 hours per week. (5 units)

11H. General Chemistry I Honors

Accelerated treatment of CHEM 11 material and presentation of other topics not normally covered in general chemistry. Laboratory 3 hours per week. *Prerequisites: Grade of at least 3 on the Chemistry advanced placement test and either permission of instructor or participation in the University Honors Program.* (5 units)

12. General Chemistry II

Subjects include properties of solids, liquids, and gases, properties of solutions, chemical kinetics, properties of acids and bases, and an introduction to chemical equilibria. Several lectures deal with special topics chosen at the discretion of the instructor. Laboratory 3 hours per week. *Prerequisite: A grade of at least C– in CHEM 11 or 11H.* (5 units)

12H. General Chemistry II Honors

Accelerated treatment of CHEM 12 material and other topics not normally covered in general chemistry. Laboratory 3 hours per week. *Prerequisites: Permission of instructor and either a strong performance in CHEM 11 or 11H or at least a 4 on the Chemistry advanced placement test.* (5 units)

13. General Chemistry III

Topics include aqueous equilibrium, acid-base chemistry, chemical thermodynamics, electrochemistry, spectroscopy, and statistical tools required for data analysis. The laboratory introduces quantitative methods of analysis such as titration, spectroscopy, and electrochemistry. Laboratory 4 hours per week. *Prerequisite: A grade of at least C– in CHEM 12 or 12H.* (5 units)

15. Introduction to Research

This course introduces students to opportunities for undergraduate research in the department. Departmental faculty present their current research. Also, an overview of typical tools used in pursuing scientific research projects is provided. *Students interested in the chemistry or biochemistry major/minor should ordinarily take this course before the end of their sophomore year.* (1 unit)

19. Chemistry for Teachers

This laboratory-based course is designed to teach the fundamental concepts of chemistry and is geared toward students who are interested in becoming elementary or middle school teachers. The course focuses on the following concepts: nature of matter, atomic structure, chemical bonding, and chemical reactions. While learning these core concepts, students will experience what it means to do science by developing their experimentation skills as they participate in a classroom scientific community. Laboratory 3 hours per week every other week. *Cannot be taken by students with prior credit for CHEM 5 or 11.* (4 units)

31. Organic Chemistry I

Topics include organic structure and conformations, stereochemistry, structure-reactivity relationships, and the chemistry of alkyl halides and alkenes. Special emphasis is placed on understanding reaction mechanisms. Laboratory 3 hours per week. *Prerequisite: CHEM 13. Additionally, students receiving a grade lower than C– in CHEM 13 are strongly urged to meet with their instructor before continuing with CHEM 31.* (5 units)

32. Organic Chemistry II

Topics include spectroscopy and the chemistry of alkynes, ethers, alcohols, and carbonyl compounds. Laboratory 3 hours per week. *Prerequisite: CHEM 31. Additionally, students receiving a grade lower than a C– in CHEM 31 are strongly urged to meet with their instructor before continuing with CHEM 32.* (5 units)

33. Organic Chemistry III

Topics include carbonyl condensation reactions, aromatic substitutions, amines, carbohydrates, and peptide and protein synthesis. Other advanced topics may include pericyclic reactions and natural product synthesis. Laboratory 3 hours per week. *Prerequisite: CHEM 32. Additionally, students receiving a grade lower than a C– in CHEM 32 are strongly urged to meet with their instructor before continuing with CHEM 33.* (5 units)

99. Independent Laboratory

Laboratory course, primarily for transfer students to make up lower-division laboratory as needed for equivalency with CHEM 11, 12, 13, 31, 32, and/or 33. *Prerequisite: Approval of department chair.* (1 unit)

UPPER-DIVISION COURSES

Note: No course offered by the Department of Chemistry and Biochemistry is subject to challenge, i.e., to fulfillment by a special examination.

101. Bioinorganic Chemistry

Structure, properties, and reactivity of metal complexes and the function of metal ions in biological processes. *Prerequisite: CHEM 32.* (5 units)

102. Inorganic Chemistry

Introduction to inorganic chemistry with emphasis on the nonmetals. Laboratory 3 hours per week. *Prerequisite: CHEM 13.* (5 units)

111. Instrumental Analysis

Principles and use of instrumentation. Focus on electronics, spectroscopic methods, mass spectrometry, and chemical separations. Laboratory 4 hours per week. *Prerequisite: CHEM 13. Pre- or co-requisite: CHEM 32.* (5 units)

112. Bioanalytical Chemistry

A focused investigation of the application of modern methods of analytical chemistry to understanding biological systems at the molecular level. Topics depend on recent developments in bioanalytical research but may include sub-cellular analyses, proteomics, electrochemical methods, and nanoparticle-based approaches to analysis. The course stresses extensive reading of recent literature in bioanalytical chemistry, critical evaluation of published scientific papers, and development of skills in scientific writing. *CHEM 112 satisfies the Advanced Writing requirement. Prerequisite: CHEM 111 or consent of instructor.* (5 units)

115. Chemistry and Biochemistry Seminar

Active areas of research in university, industrial, and government laboratories, presented by guest speakers. May be repeated for credit. Graded P/NP only. *Pre- or co-requisite: CHEM 33.* (0.5 units)

130. Organic Syntheses

Modern synthetic methods applied to the preparation of structurally complex target compounds, such as bioactive natural products and pharmaceuticals. Extensive discussion of synthetic planning, known as retrosynthetic analysis, emphasizing the standard bond-forming methods learned in CHEM 31–33. Offered in alternate years. *Prerequisite: CHEM 33.* (5 units)

131. Bioorganic Chemistry

Chemical synthesis of carbohydrates, nucleic acids, peptides, proteins, and reaction mechanisms of biological cofactors. Offered in alternate years. *Prerequisite: CHEM 33.* (5 units)

141. Biochemistry I

An introduction to structure/function relationships of biologically important molecules, enzymology, membrane biochemistry, and selected aspects of the intermediary metabolism of carbohydrates. *Pre- or co-requisite: CHEM 33.* (5 units)

142. Biochemistry II

Includes a study of various aspects of the intermediary metabolism of carbohydrates, lipids, and amino acids, as well as nucleic acid structure and function, protein synthesis, and subcellular sorting, and more advanced molecular physiology, including membrane biochemistry, signal transduction, and hormone action. *Prerequisite: CHEM 141.* (5 units)

143. Biochemical Techniques

A laboratory course emphasizing fundamental theory and practice in biochemical laboratory techniques, including preparation and handling of reagents; isolation, purification, and characterization of biomolecules; enzyme kinetics; spectrophotometric assays; and electrophoretic techniques. Laboratory 8 hours per week. *Prerequisites: CHEM 141 and consent of instructor.* (3 units)

150. Biophysical Chemistry

Introduction to the physical behavior of biomolecules. Topics include transport properties, reaction kinetics, sedimentation, electrophoresis, binding dynamics, and molecular motion. *Prerequisites: MATH 13 and CHEM 33, or consent of instructor.* (5 units)

151. Spectroscopy

Fundamentals of quantum mechanics, including wave functions and probability; rotational, vibrational, and electronic transitions; atomic and molecular electronic structure; and magnetic resonance. *Prerequisites: MATH 13 and CHEM 33.* (5 units)

152. Chemical Thermodynamics

Fundamental laws of thermodynamics, and applications to ideal and real gas equations of state, ideal and real solutions, phase equilibria, and electrochemistry. *Prerequisites: MATH 13 and CHEM 33.* (5 units)

154. Physical Chemistry Laboratory

Experimental applications of thermodynamics, kinetics, spectroscopy, and other aspects of physical chemistry. Laboratory 8 hours per week. *Prerequisite: Must be enrolled in or have completed CHEM 151 or 152.* (3 units)

182. Undergraduate Research

Experimental research project supervised by chemistry and biochemistry faculty members. Each unit requires a minimum of 30 hours of laboratory work. May be repeated for credit. *Prerequisite: Consent of instructor.* (1–3 units)

183. Senior Research Experience

Individual research under the supervision of chemistry and biochemistry faculty members, culminating in a comprehensive progress report. Laboratory at least 9 hours per week. *Prerequisites: Senior standing in chemistry and consent of instructor.* (3 units)

184. Capstone Research Experience

Continuation of individual research under the supervision of a chemistry and biochemistry faculty member, culminating in a thesis and oral presentation. Laboratory at least 9 hours per week. *Prerequisites: CHEM 182 or 183, and consent of instructor.* (3 units)

190. Special Topics in Chemistry

Special Topics courses covering advanced topics in any of the five areas of study in chemistry may be offered on an intermittent basis. These courses may be offered as once-a-week seminars or follow more traditional course schedules. The course units will vary based on the number of course meetings per quarter and the course workload. Possible topics are organic mechanisms, transition metals in organic synthesis, materials, nanotechnology, photochemistry, bioanalytical chemistry, electrochemistry, environmental chemistry, molecular physiology, and membrane biochemistry. This course may be repeated for credit if the topics vary. (2–5 units)

199. Independent Study

Directed study under the supervision of a faculty member in an area or topic in chemistry or biochemistry not covered in regular courses. *Registration by permission of the professor directing the study only.* (1–5 units)

DEPARTMENT OF CLASSICS

Associate Professor Emerita: Helen E. Moritz
Professors: William S. Greenwalt, John R. Heath (*Department Chair*)
Associate Professors: Scott LaBarge, Michael C. McCarthy, S.J. (*Edmund Campion, S.J. Professor*)
Assistant Professors: Carolynn E. Roncaglia, Daniel W. Turkeltaub

Classics in the broad sense is the study of all aspects of the life and culture of ancient Greece and Rome in their Mediterranean context. The Department of Classics offers all levels of ancient Greek and Latin as well as courses that explore the origins of Western literature, history, art, mythology, philosophy, religion, and government and their enduring relevance to our lives. Most courses in the department require no knowledge of an ancient language and are open to any interested student. Latin or Greek may be taken to satisfy the second language requirement. Because of the multidisciplinary nature of the field, classics provides an ideal liberal arts curriculum that is an excellent background for careers in many areas.

Majors and minors are available in several programs in the Department of Classics: classical languages and literatures (Latin or Greek; there is a major, but no minor, in Latin *and* Greek), classical studies, and ancient studies.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of arts degree, students majoring in classics must complete the departmental requirements for the option desired:

Bachelor of Arts in Classical Languages and Literatures

Major in Latin or Greek

- Nine upper-division courses in the language of concentration
- First-year proficiency in the other classical language
- CLAS 197A and CLAS 197B

Major in Latin and Greek

- Nine upper-division courses in the ancient languages, with at least six of these in a single language
- CLAS 197A and CLAS 197B

Bachelor of Arts in Classical Studies

- Six classes in Latin or Greek, which may include the elementary sequence
- CLAS 65
- Two additional lower-division courses
- Two upper-division literature courses (one upper-division reading course in Greek or Latin may be substituted)
- Two upper-division ancient history or political science courses
- One upper-division course in classical culture
- CLAS 197A and CLAS 197B

Bachelor of Arts in Ancient Studies

- CLAS 60
- Four additional lower-division courses
- Seven upper-division courses, at least one from each of the three perspectives
- CLAS 197A and CLAS 197B

REQUIREMENTS FOR THE MINORS

Students must fulfill the requirements indicated for the minor program desired:

Minor in Classical Languages and Literatures

- Completion of 20 upper-division units in either Latin or Greek

Minor in Classical Studies

- Fulfillment of the second language requirement for the bachelor of arts in Latin or Greek
- Two lower-division courses
- Two upper-division courses in literature, in the original or in translation
- One additional upper-division course in any perspective

Minor in Ancient Studies

- CLAS 60
- Two additional lower-division courses
- Four upper-division courses from at least two different perspectives

Approved Courses towards Major and Minor in Classical Studies and Ancient Studies

Lower Division:

- CLAS 11A, 12A, 60, 63, 65, 67, 68, 75; ARTH 21; PHIL 51; SCTR 65

Upper Division (three perspectives):

- Literature: CLAS 141, 175, 180, 181, 184; ENGL 161
- History and Political Science: CLAS 108, 109, 110, 111, 113, 176, 185; POLI 111
- Classical Culture: CLAS 146, 177, 187, 188; ARTH 104, 106, 110; PHIL 131; SCTR 100, 110

Other courses not listed above that are offered on classical topics in the Departments of Art History, English, History, Philosophy, Political Science, and Religious Studies may also count toward a degree in classics; consult with the Chair of Classics before enrolling.

LOWER-DIVISION COURSES: LATIN

1. Elementary Latin I

Introduction to vocabulary, forms, and grammar of classical Latin. Development of the reading skills with supporting exercises in writing. No language laboratory. (4 units)

2. Elementary Latin II

Continuation of Latin I. (4 units)

3. Elementary Latin III

Completion of elementary Latin. (4 units)

UPPER-DIVISION COURSES: LATIN

101. Intermediate Latin

A course for students who have finished basic Latin grammar. Students will review Latin forms and syntax while reading prose and poetry of increasing complexity. Students will be prepared to enroll in Latin reading courses covering individual authors and genres. Offered in fall quarter only. (5 units)

121. Caesar

Reading course in Latin. Representative selections from the *Commentarii on the Gallic War* and/or *Bellum Civile*. Consideration of the adaptation of history to political ends. (5 units)

122. Catullus

Reading course in Latin. Lyric poems, short epigrams, and longer mythological poems by the late Republican. (5 units)

123. Roman Comedy

Reading course in Latin. One or more plays by Plautus or Terence. Origins and nature of Roman comedy. (5 units)

124. Ovid: Metamorphoses

Reading course in Latin. Selections from Ovid's epic compendium of mythology. (5 units)

125. Cicero: Philosophical Works

Reading course in Latin. Consideration of Cicero's eclectic philosophy through a careful reading of one or more of his philosophical dialogues. (5 units)

126. Cicero: Oratory and Rhetoric

Reading course in Latin. One or more exemplars of Cicero's rhetorical style or rhetorical theory. Consideration of rhetorical form, figures, and topoi. (5 units)

127. Vergil: Aeneid

Reading course in Latin. The epic poem on the effort of founding Rome and the cost of its greatness. Consideration of the traditional and innovative features of Vergil's epic style and purpose. Attention to epic meter. (5 units)

130. Roman Elegy

Reading course in Latin. Representative selections from the works of Tibullus, Propertius, and Ovid. Origins and development of the elegiac genre. (5 units)

131. Vergil: Eclogues and Georgics

Reading course in Latin. Vergil's earlier works: pastoral poems set in an idealized landscape and the didactic poem on the agriculture and countryside of his native Italy. (5 units)

132. Horace

Reading course in Latin. Selections from the odes and epodes. Attention to the adaptation of Greek lyric forms and rhythms to the Latin language. (5 units)

133. Livy

Reading course in Latin. Selections from the *Ab Urbe Condita*—the history of Rome from its semimythical founding through monarchy, early Republic, and Punic Wars. (5 units)

134. Roman Letters

Reading course in Latin. Selections from various authors: Cicero, Seneca, Pliny. Discussion of the epistle as literary genre, with focus on the social and historical background of the author. (5 units)

135. Medieval Latin

Major works of prose and poetry from the fourth century to the Renaissance. St. Augustine's *Confessions*; the histories of Gregory of Tours, Bede, and Einhard; Latin fables; popular songs such as the *Carmina Burana*; and the humanistic writings of Dante and Petrarch. (5 units)

137. Special Topics in Latin Poetry

Occasional courses in selected authors or genres for advanced students. Possible topics: Lucretius or satire. (5 units)

138. Special Topics in Latin Prose

Occasional courses in selected authors or genres for advanced students. Possible topics: the Roman novel, Tacitus, or other Roman historians. (5 units)

LOWER-DIVISION COURSES: GREEK

21. Elementary Greek I

Introduction to vocabulary, forms, and grammar of Attic Greek. Development of reading skills with supporting exercises in writing. No language laboratory. (4 units)

22. Elementary Greek II

Continuation of Greek I. (4 units)

23. Elementary Greek III

Completion of Greek grammar. Introduction to reading Greek literature. (4 units)

UPPER-DIVISION COURSES: GREEK

151. Lucian

Reading course in Greek. Selections from the author's satirical treatments of mythology, history, philosophy, and rhetoric and/or from the fantasy called *A True Story*. Lucian's place in the Second Sophistic. (5 units)

152. Homer: Odyssey

Reading course in Greek. Selected passages demonstrating the fusion of the heroic and the romantic in an epic of peacetime. Consideration of epic meter and conventions. (5 units)

153. Euripides

Reading course in Greek. A complete tragic drama. Attention to characterization, dramatic structure, and poetry, and to Euripides' place in the history of tragedy. Metrical reading of dialogue. (5 units)

154. Herodotus

Reading course in Greek. Selections from the *Persian Wars*. Herodotus' achievements and limitations as the "Father of History." Peculiarities of the Ionic dialect. (5 units)

155. Plato

Reading course in Greek. Careful reading from one or more dialogues such as *Apology*, *Crito*, *Phaedo*, and *Republic*. Detailed study of dialogue mode of discourse; overview of Plato's philosophy. (5 units)

156. Greek New Testament

Reading course in Greek. Readings selected from the Koine Greek text of the New Testament with a concentration on the gospels or the epistles. Close reading of the text with a view to theological implications of the vocabulary. Introduction to primary research tools. (5 units)

157. Hesiod

Reading course in Greek. Selected readings from Hesiod's two poems, *Works and Days* and *Theogony*. (5 units)

161. Homer: Iliad

Reading course in Greek. Selected passages illustrating the course and consequences of the wrath of Achilles and the nature of the hero. Consideration of epic meter and conventions. (5 units)

162. Sophocles

Reading course in Greek. A complete tragic drama. Attention to characterization, dramatic structure, and poetry, and to the author's particular contributions to the development of the tragic form. Metrical reading of the text. (5 units)

163. Aeschylus

Reading course in Greek. A complete tragic drama. Attention to characterization, dramatic structure, and poetry, and to the author's particular contributions to the development of the tragic form. Metrical reading of the text. (5 units)

164. Oratory

Reading course in Greek. Selections from a representative Greek orator such as Demosthenes or Lysias. Consideration of classical rhetorical forms and topoi. (5 units)

167. Special Topics in Greek Poetry

Occasional courses in selected authors or genres for advanced students. Possible topics: Lyric, Homeric Hymns, or Pindar. (5 units)

168. Special Topics in Greek Prose

Occasional courses in selected authors or genres for advanced students. Possible topics: Thucydides or Xenophon. (5 units)

LOWER-DIVISION COURSES: CLASSICS

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses will address significant texts, ideas, issues, and events in their historical context from a humanistic perspective. Classics topics include Barbarians and Savages, Gods and Mortals, and Heroes and Heroism. *Successful completion of C&I I (CLAS 11A) is a prerequisite for C&I II (CLAS 12A).* (4 units each quarter)

41. Word Workshop: Scientific Etymology

English derives much of its everyday vocabulary from Latin and much of its scientific vocabulary from Greek. This class will help you build your vocabulary and acquire the tools to figure out words that you do not already know by teaching you the basics of English word formation and some common Greek and Latin morphemes. (2 units)

42. Greek Heroes in Hollywood

Movies have fascinated their audiences with Greek myths for decades but are notorious for playing fast and loose with the ancient stories. This course examines the classical sources for, and some cinematic versions of, classical figures such as Perseus or Heracles (topic varies). (2 units)

60. Introduction to Ancient Studies

An exploration of the nature of political and religious authority; that is, the relationship between the individual, the state, and the divine—in three different ancient civilizations. The primary "texts" for this investigation are the representative monuments of each culture: the pyramids of Egypt (particularly the Old Kingdom), the Temple of Solomon in Jerusalem in the united monarchy, and the roads of classical Rome. (4 units)

63. Ancient Eros: Sex and Religion in Ancient Greece

This course explores the various manifestations and significance of sex ("Bittersweet Eros"), both the deity and the divinely-inspired passion, in ancient Greece. While this course focuses on examining the socio-religious significance of Aphrodite and her son, Eros (the Roman Cupid), it is also designed to provoke an open conversation about responses to sex found in relevant contemporary religious expression. Assignments are derived from Greek and Roman literature, philosophy, historiography, and art, as well as from contemporary magazines, scholarly journals and books, religious documents, and movies. Participation in class discussion is mandatory for this seminar-style course. (4 units)

65. Classical Mythology

Principal gods and heroes of Greek and Roman antiquity: their stories, significance, and pictorial representations. Implications of myth in society and possible origins of myth. Important background for European and English literature. (4 units)

67. Ancient Greek Religion

Consideration of the differing attitudes and expectations of polytheisms and monotheisms, and of religious expression in the context of classical Greek cult and ritual. Readings are drawn from a wide variety of literary, historical, philosophical, and epigraphical texts. *Also listed as HIST 16.* (4 units)

68. Ancient Roman Religion

Examination of religious practices, institutions, and beliefs of the ancient Romans. Special consideration of interconnections in Roman religiosity between the acts/beliefs of individuals and the concerns of the state. Concludes with philosophic mysticism, magic, mystery religions, and Christianity. *Also listed as HIST 17.* (4 units)

75. Classics in Cinema

A survey of the classical world through selected dramatic films illustrating sequentially the cultural and political history of ancient Greece and Rome. Close viewings of popular films, with comparative reference to sources and practice in the techniques of film criticism. (4 units)

UPPER-DIVISION COURSES: CLASSICS

108. Ancient Greece

A survey of Hellenic history from the Bronze Age to Alexander the Great. Emphasis on the rise and fall of the polis as an independent social, cultural, and political community. *Also listed as HIST 108.* (5 units)

109. The Hellenistic Age

A cultural, social, and political review of Alexander the Great's conquests and their Hellenistic ramifications through the reign of Egypt's Cleopatra VII. *Also listed as HIST 109.* (5 units)

110. Roman Republic

A political, military, social, and cultural review of the rise and fall of the most successful state the West has ever known. *Also listed as HIST 110.* (5 units)

111. Roman Empire

A political, social, and cultural survey of the Roman Empire beginning with Augustus and tracing changes in Rome from the development of the Roman Empire as a world state to the development of Christianity as a world religion. *Also listed as HIST 111.* (5 units)

113. Democracy Under Siege: Ancient Athens and Modern America

This course will trace the fate of the Athenian democracy after the Peloponnesian War through the Hellenistic Age (circa 404 to 307 CE). It will cover the foreign and domestic policies of Athens through this period, and cover both the problems and the opposition to democracy by non-democratic polities as well as by those opponents of democracy who lived in Athens itself. Although the United States is a republic and not a democracy in the Athenian mode (which in fact, was the intent of our republic's founders), the U.S. in the 21st century is facing comparable opposition both domestically and in the realm of foreign affairs to those which confronted the ancient Athenians. Parallels between the world of the 4th century CE and 2012 will not only be noted, they will be emphasized through readings and class discussions. *Also listed as HIST 132.* (5 units)

115. Numismatics

This course will study how the minting of coins changed the western world politically, sociologically, and economically. It will use the minting of ancient coins to investigate ancient economies and the political structures from which they emerged. Technical aspects of the minting of coins will be addressed, as will the artistic achievements of ancient engravers. (5 units)

141. Love and Relationships in Classical Antiquity

An examination of the many forms of loving and erotic relationships as they pertained to the Greek and Roman quest for the best human life. Readings in Euripides, Sappho, Ovid, Plato, Aristotle, and many others from genres of poetry, essays, letters, tragedy, and philosophy. *Also listed as PHIL 131D and WGST 133.* (5 units)

146. Age of Socrates

A study of Socrates as both a historical and literary figure, with special attention to his political and cultural context, and to our three chief sources on him and his philosophical activities: Aristophanes, Plato, and Xenophon. (5 units)

175. Topics in Classical Literature

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

176. Topics in Ancient History

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

177. Topics in Ancient Philosophy

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

178. Topics in Classical Culture

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

180. Ancient and Modern Laughter

Students will investigate the nature and psychosocial functions of laughter, with a particular eye to the Greek and Roman roots of Western comedy. Readings will focus on comedic plays by Aristophanes, Plautus, and Terence, supplemented with readings of ancient and modern humor theorists and psychologists. For each playwright, we will also analyze one popular recent movie and other modern analogs of humor and plot structures. Students will demonstrate their understanding of the material by collaborating over the course of the term to write, costume, and perform original plays in imitation of the ancient playwrights. (5 units)

181. Classical Tragedy

Representative works of the principal Greek tragic playwrights: Aeschylus, Sophocles, and Euripides. Features of the tragic genre, its origins, and the conventions of its performance. *Also listed as ENGL 110.* (5 units) NCX

184. Classical Mythology in the Western Tradition

An exploration of some of the ways authors from the classical period through the 20th century have manipulated Greek myths for their own poetic and political purposes. Focus is on the legends surrounding the fall of Troy, with particular attention paid to the shifting character of perhaps the two most protean figures in Greek mythology: Odysseus and Helen. Texts include selections from Homer's *Iliad*, Vergil's *Aeneid*, and Dante's *Inferno*, and unexcerpted works by Homer, Sophocles, Euripides, Gorgias and Isocrates, Ovid, Seneca, Dictys and Dares, Shakespeare, Tennyson, Giraudoux, modern Greek poets, and the Coen brothers. *Also listed as ENGL 187.* (5 units)

185. Gender in Antiquity

Investigation into the representation and the reality of gender in social, economic, political, and religious contexts in the classical world. *Also listed as ENGL 186 and WGST 157.* (5 units)

187. The Democratic Muse: Public Art in Athens and the United States

This course will compare and contrast the function of publicly funded art in the two most celebrated Western democracies, classical Athens and the United States. After exploring the "meaning" of the Parthenon, students will discuss the civic role and thematic significance of important (and usually controversial) examples of Greek and American public art and examine what they have to say about imperialism war, religion, gender, and economic policy. In what way can the arts promote a civil society? How is art "good" for democracy, and vice versa? Should a democracy fund the arts, and if so, how? (5 units)

188. Justice: Ancient and Modern

This course explores classical Greek concepts of justice both abstracted in philosophy and dramas and as practiced in the classical courtroom. Student debates about controversial modern American court cases will demonstrate the relevance of these ancient thoughts and practices to the complex issue of how justice is defined and practiced today. (5 units)

197A. Capstone I

Bi-weekly seminar on various topics, combined with initial research for senior thesis: identification of a coherent topic of thesis, development of a detailed outline, and preparation of an annotated bibliography, conducted under the active direction of a member of the classics faculty. *Prerequisites: For senior classics majors only; permission of instructor and department chair required.* (3 units)

197B. Capstone II

Continuation of seminar in addition to supervised completion of the final draft, public oral presentation, and defense of the senior thesis. *Prerequisites: CLAS 197A. For senior classics majors only; permission of instructor and department chair required.* (3 units)

199. Directed Reading/Research

Individually designed programs of reading or research, in Latin, Greek, or classics (i.e., literature in translation or culture). *Prerequisites: Available to advanced students. Permission of instructor and department chair required.* (5 units)

DEPARTMENT OF COMMUNICATION

Professors Emeriti: Don C. Dodson, Emile McAnany
Professors: Laura Ellingson, Charles H. Raphael, Paul A. Soukup, S.J. (*Pedro Arrupe, S.J. Professor and Department Chair*), SunWolf, Michael Whalen (*Knight Ridder/San Jose Mercury News Professor*)
Associate Professors: Christine M. Bachen, Hsin-I Cheng, Rohit Chopra, Stephen C. Lee, Yahia Mahamdi
Assistant Professors: Justin Boren, Sreela Sarkar
Senior Lecturers: Barbara Kelley, Gordon Young
Lecturers: Katharine Heintz, Andrew W. Ishak

The Department of Communication offers a program of studies leading to a bachelor of arts in communication. The major prepares students for a wide variety of graduate studies and for careers in the communication industry. An academic minor is also available. Students explore the theories, research methods, responsibilities, institutional structures, and effects of mass communication, interpersonal communication, and computer-mediated communication. The major also integrates theory with practice. We help students to apply their knowledge of the communication process to create their own speeches, films, television programs, journalism, Web content, and communication and marketing campaigns. Many of our students go directly to work in these fields after graduation.

Because the communication field requires students to have a broad liberal arts education, students integrate courses in the Department of Communication with courses in other departments. Often, students complete a minor or take a number of courses in related disciplines. To encourage students to explore global studies, the department accepts up to two approved study abroad courses toward completion of the communication course requirements, usually as upper-division electives. All junior and senior students are encouraged to complete an internship at an off-campus media organization or other communication-related institution. Internships may be counted for course credit as a department elective.

In their senior years, all communication majors synthesize their learning in the department by completing a scholarly thesis (on any aspect of communication) or an applied capstone project (in journalism, digital filmmaking, or public relations). Theses and capstone projects, which typically embody students' most advanced work, are suitable for submission as part of applications for graduate school and jobs.

Students interested in communication, including nonmajors, enjoy a wealth of co-curricular opportunities. All students are encouraged to participate in one of the student-run campus media, including the student newspaper, radio station, and yearbook. Practicum courses allow students to gain academic credit for working in student media. Santa Clara Debate, one of the oldest forensic programs in continuous operation on the West Coast, provides a challenging and rigorous co-curricular activity designed to develop public speaking skills, critical thinking, and public policy analysis. Policy debate participants are eligible to apply for merit scholarships.

All courses taken to fulfill requirements for the major or minor must be four or five units and must be taken for a letter grade, not on a pass/no pass basis. Practicum courses, numbered 190 through 195, do not count toward fulfillment of the communication major or minor.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the Bachelor of Arts degree, students majoring in communication must complete the following departmental requirements:

- COMM 1
- COMM 2 or 2GL
- COMM 12
- COMM 20
- COMM 30
- COMM 40 or 40EL
- Two upper-division communication theory courses (signified by the letter "A" in the course number)
- One upper-division communication applied course (signified by the letter "B" in the course number)
- Two additional approved elective upper-division communication courses
- COMM 110
- COMM 111 or 111G
- COMM 196 or 197

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in communication:

- COMM 1 or 2
- Two approved upper-division communication courses
- Three additional approved communication courses (any combination of upper-division or lower-division courses)

LOWER-DIVISION COURSES

1. Introduction to Interpersonal Communication

An overview of the communication process, issues, and theories explaining behaviors in human relationships, with an emphasis on linking our perceptions, thoughts, and feelings to those of our communication partners. Topics typically include the power of language, nonverbal communication, deception, persuasive communication, gender differences in communication, small group communication, and intercultural communication. (4 units)

2. Introduction to Media Studies

An examination of mass communication and society, focusing on media industries, the production of content, and audiences. Considers different types of media; theoretical perspectives related to the role of media in society; and ethical and regulatory issues pertaining to media practice. (4 units)

2GL. Introduction to Global Media Studies

An examination of the relationship between media and society in a global world, focusing on media industries, production, and audiences within and across different national contexts. Considers different types of media; theoretical perspectives on media and global society; and ethical and regulatory issues pertaining to media practice in various media markets and settings. (4 units)

12. Technology and Communication

Examination of the relationship between communication technology and society, in the past, present, and future. Hands-on work with the computer and Internet as tools for research and communication. (4 units)

20. Public Speaking

This course is designed to provide students with basic theories and skills that are essential to effective public speaking. Topics include audience analysis, organization, persuasion, credibility, and delivery. Students can apply these skills in a variety of public speaking situations, whether in future communication in college courses or in non-academic settings. Each student will also learn to analyze, criticize, and evaluate the speaking of others. (4 units)

30. Introduction to Digital Filmmaking

Designed to help students learn the art and practice of digital filmmaking. Through a combination of lectures, labs, shooting, and editing exercises, students are introduced to the concepts and processes involved in producing a short documentary and a short fictional film. In addition to attendance in class, all students are required to attend production labs. Concurrent enrollment in lab required. (5 units)

40. Introduction to Journalism

Introduction to the theories and techniques of journalism with emphasis on the role of journalism in a democracy, news values and ethics, reporting and writing techniques, and discussion and readings on the future of journalism. Includes weekly lab, which may be either in class or online at a flexible time, at the instructor's discretion. (5 units)

40EL. Introduction to Journalism: Diversity and Community

Introduction to the theories and techniques of journalism with emphasis on covering diverse, multiracial communities fairly and accurately, the role of journalism in a democracy, news values and ethics, reporting and writing techniques, and discussion. Student work may be published in online news media outlets. Includes weekly lab and interaction within the community. *Also listed as ETHN 60. Note: This course requires participation in community-based learning experiences off campus.* (5 units)

UPPER-DIVISION COURSES

Note: Theory courses are designated with the letter "A" and application courses with the letter "B."

100A. The Science of Happiness

When we get what we want, why doesn't that always make us happy? Our relationships are embedded in the pursuit or loss of happiness. This course is an interdisciplinary review of research and theories that explain our experiences of happiness. Topics include the transient nature of happiness, our brain's biological happiness system, the effects of tragic or fortunate events, blind spots, counterfactual thinking/future-thinking/presentism, the science of laughter, and the communication roles of complaints versus gratitude. We will look at how happiness is affected by winning or by losing, as well as why predicting our future happiness (when we choose mates, careers, and material acquisitions) is often flawed. Students will gain an understanding of what might (or might not) bring them and those they care about sustained happiness as a result of the decisions they make throughout their lives. (5 units)

101A. Vocation and Gender: Seeking Meaning in Work and Life

An interdisciplinary examination of vocation, understood as both a meaningful career and life outside of work. Incorporates theoretical and empirical methods of the disciplines of communication and Women's Studies to provide a rich set of tools with which to make discerning decisions on personal vocation. The course provides a framework for considering personal life choices within the context of cultural norms and for analysis of how individuals and groups engage in interpersonal, organizational, and mediated communication surrounding work/life issues. *Also listed as WGST 160.* (5 units)

101B. Interviewing

Fundamental principles and techniques of interpersonal interviewing. Collecting narratives from people about their experiences and ways they make sense of events in their relationships with other people. Advanced principles of gathering scholarly data through face-to-face interviews, using a variety of interviewing formats and tools. Supervised field work, developing interview protocols, interviewing real-world populations, recording and collecting responses, and organizing data. Emphasis on compassionate listening skills. Topics will vary. *Prerequisite: COMM 111.* (5 units)

102A. Persuasion

What is the difference between attempting to change someone's attitude, belief, or behavior? This course examines theories and research about persuasion, social influence, and compliance gaining, including the dynamics of successfully resisting persuasion attempts. We will focus on interpersonal persuasion in social settings (our roles as friends, daughters/sons, parents, romantic partners, co-workers, teammates, and leaders). The course will cover credibility, social proof, influence in groups, persuasive language, compliance gaining techniques, and how subtle persuasion tactics influence our buying, eating, and health choices. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

103A. Communication and Conflict

A review of theories, perspectives, and research on communication and conflict in various contexts (families, friendships, romances, business relationships). Specific topics will include getting what you want, saving face, realigning power imbalances, miscommunication, styles and tactics, negotiation, third-party interventions, and transforming conflicts. Development of communication skills for managing conflict

productively in interpersonal, organizational, and intercultural contexts. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

104A. Group Communication

Theories and research about the communication dynamics in a variety of relational groups. Topics include childhood groups, gaining entry to groups, being excluded from groups, group hate, social loafing, leadership styles, facilitating groups, task versus social goals, communication roles of members, effects of gender and diversity, moral values of members, and the resolution of group conflicts. Specific groups will include social peer groups, cliques, gangs, small work groups, super-task groups, problem-solving groups, teams, and decision-making groups (including juries). In addition to theory, practical skills for handling group challenges and member conflict will be offered. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

105A. Multicultural Folktales and Storytelling

Across time and around the world, people have told stories to teach, entertain, persuade, and carry a culture's history. This course studies oral literature, including fairy tales, trickster tales, urban legends, ghostlore, hero/heroine journeys, and wisdom stories. Explores the values, gender roles, norms, beliefs, sense of justice, spirituality, and diverse worldviews embedded in every tale. Students will study, critically think about, and perform world folktales—developing a personal creative voice, while learning to appreciate folktales as rich multicultural bridges for understanding other people. Every student will learn tale-telling skills that can be applied to enrich the lives of others, in careers and community. (5 units)

106A. Gender, Health, and Sexuality

Covers the fundamentals of health communication theory and research with a focus on how health is socially constructed at the intersections of biology, medical technology, and communication. Explores how gender identity, sexual orientation, and sexual identity produce and are produced by cultural gender norms as they manifest in embodiment, sexual expression, and experiences of health and illness. *Also listed as WGST 140. Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

107A. Intercultural Communication

This course introduces key research in intercultural communication within and between co-cultural groups in the United States. We will critically examine similarities and differences in communicative styles, historical contexts, and values. *Prerequisite: Any one of the following: COMM 1, COMM 2 or 2GL, PSYC 1, PSYC 2, or SOCI 1. Note: This course requires participation in community-based learning experiences off campus.* (5 units)

108A. Communication and Gender

Explores gendered patterns of socialization, interaction, and language. Goes beyond essentializing female and male modes of communicating to consider ways in which masculinity, femininity, ethnicity, class, age, sexuality, and disability intersect in interpersonal, family, organizational, and public communication, as well as in feminist and men's movements. *Also listed as WGST 161. Prerequisite: COMM 1, ANTH 3, or consent of instructor.* (5 units)

109A. Friendships and Romances

This seminar-style course will examine theories, concepts, and research that explain the relational dynamics in our friendships and romances. Using a communication focus and examining published studies and theories, topics will include childhood and adult friendships, cliques, toxic friends, women

and men as platonic friends, flirting, dating, courting, maintaining intimacy, emotional communication, the bioneurology of love, rejection, and relational endings (losing, leaving, and letting go). Counts as a University Honors Program course, but enrollment is not limited to Honors Program students. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

110. Quantitative Research Methods

Provides students with an overview of communication as a social science and of methods for analyzing communication content, media audiences, and interpersonal communication practices. Topics include the fundamentals of research design, ethics, measurement, sampling, data analysis, and statistics. Students analyze research studies and learn the fundamentals of writing a literature review and generating scientific predictions based on existing research. Through hands-on assignments, students gain experience in concept measurement, research design, and data analysis. *Prerequisites: COMM 1 and COMM 2 or 2GL.* (5 units)

111. Qualitative Research Methods

Provides students with an understanding of qualitative methods used in communication research on messages, contexts, and impacts. Explores qualitative methods such as audience ethnography, participant observation, focus groups, textual analysis, in-depth interviewing, and institutional analysis. Students will engage in exercises on design and application of qualitative methods and analyze the data gathered. *Prerequisites: COMM 1 and COMM 2 or 2GL.* (5 units)

111G. Feminist Methods

This course explores feminist research methods in communication and other social sciences as they intersect with women's and gender studies. Through lectures and workshops, students will explore how theories and politics shape the kinds of research questions we ask, the types of materials we use, and how we define our relationships with our research participants. Students will explore topics related to femininity, masculinity, and/or sexuality using ethnographic, interviewing, and textual analysis methods informed by feminist theory and the politics of social justice. *Also listed as WGST 102. Prerequisites: COMM 1 and COMM 2 or 2GL.* (5 units)

120A. Environmental Communication

This course introduces students to tools for analyzing and engaging in public communication about the environment. Students draw on communication theory and research to understand strategies used in contemporary environmental debates and to participate in campaigns. Special attention is given to how mass media news and entertainment can represent environmental issues responsibly. Final projects involve designing environmental communication campaigns and products. Counts toward the environmental studies and environmental science majors. (5 units)

121A. Diversity and Media

Addresses the theory and practice of the relationships between cultural diversity, power, identity, and media production, representation, and use. Examination of how different groups historically have been marginalized in public representation and how these images have been, and are being, challenged. Course requirements include research into individual experiences of public images. Focus on the United States, especially California. *Prerequisite: COMM 2 or 2GL or consent of instructor. Also listed as ETHN 162.* (5 units)

122A. Media and Advocacy

The important role of media in our daily lives is clear: We use media for all types of information, for entertainment and cultural awareness, and for self-discovery and identity formation. But it is less clear whose responsibility it is to ensure that the impact of media is a positive one for individuals and

society. This class will explore the dynamic interplay between media industries, the government, and advocacy organizations as they struggle to craft policy and practices that are profitable and socially beneficial. We will examine issues of the media's role in social equality, childhood obesity, interpersonal violence, teen pregnancy, and sexually transmitted infection (STI) rates, and discuss the roles of corporate responsibility, individual responsibility, and government responsibility in crafting sound public policy. (5 units)

123A. Media and Youth

This course considers the youth media culture that has become a pivotal part of the experience of childhood and adolescence. Students examine the content of popular media aimed at young people and the media industries that produce this content. Also explored are patterns of media usage throughout childhood and adolescence, the ways that media are integrated into family life, and how educational and entertainment media content shapes children's knowledge, attitudes, behaviors, and identities. Topics include educational media effects, media violence, gender and racial/ethnic stereotyping, advertising effects, and media literacy efforts. *Prerequisite: COMM 2 or 2GL or consent of instructor.* (5 units)

124B. Information Campaigns

Examines the principles of design, implementation, and evaluation of information campaigns created to produce social change in such areas as health, the environment, or civic education. Emphasizes problem analysis, audience analysis, message design, and evaluation. Students examine actual campaigns (e.g., anti-smoking efforts, teen pregnancy, and drug campaigns) and design their own campaigns focusing on a relevant social problem. *Prerequisite: COMM 2 or 2GL or consent of instructor.* (5 units)

125A. Media Audience Studies

The audience plays a critical role in our understanding of mass communication. How do media scholars and practitioners conceptualize and study media audiences? How do individuals and groups use media, interpret media messages, and integrate media experiences into their lives? The course will address these questions, looking at a variety of media and media content (e.g., news and entertainment content of books, film, TV, Internet) and do so with different characteristics of audiences in mind. We shall see, for example, how audience responses are shaped by factors such as ethnicity, gender, age, or by the context in which the medium and its message is experienced. *Prerequisite: COMM 2 or 2GL or consent of instructor.* (5 units)

127A. Media and Social Movements

This course looks at the relationship between violence and communication from three angles: (1) violence as communication, (2) violence as a failure of communication, and (3) problems with representing violence; and includes a range of philosophical and disciplinary perspectives on violence and communication, including media and communication, social theory, and visual culture. This course has a strong global and international focus: the contexts covered include the Holocaust, the Partition of India, and 9/11. *Prerequisite: COMM 2 or 2GL.* (5 units)

128B. Dialogue and Deliberation

How can we address differences and resolve conflicts fairly and effectively? This course introduces students to the role of dialogue and deliberation in creating healthier and more democratic organizations, workplaces, and societies. Students learn a range of research-based approaches to handling difference and conflict, and develop communicative skills used by effective individuals, professionals, and citizens in real-world situations. Projects include taking part in formal dialogues and deliberations on current

issues, both as participants and moderators, and designing ways for institutions to involve stakeholders and the public in conflict resolution and policy development. (5 units)

130B. Global Screenwriting

This course is designed to introduce you to the wonderful and creative world of global screenwriting and how it has impacted traditional Hollywood storytelling. Students are asked to answer multiple questions: Does a uniform visual style exist? Does just one dramatic paradigm exist? Are all films about protagonists and antagonists? Students complete a script treatment, narrative outline, two drafts of a short screenplay, and analyses of published screenplays. *Prerequisites: CTW 1 and 2.* (5 units)

131B. Short Fiction Production

This course is designed to immerse students in the craft and aesthetics of fiction filmmaking. Students work in groups to develop, produce, and edit their own short films based on selected scripts they either write or acquire from student screenwriters. The course also functions as a forum where students explore the film styles of classical and contemporary filmmakers through readings and screenings so that they are grounded in film language and inspired to develop their own film styles. Students are required to attend a production lab and outside film screenings. *Prerequisite: COMM 30.* (5 units)

132B. Short Documentary Production

In this course, students are introduced to the basic theories and techniques of the documentary mode of filmmaking and are trained to develop, produce, and edit (in groups) their own short documentaries. Students also explore (through readings, screenings, and discussions) the techniques and styles adopted by documentary filmmakers from all over the world and are encouraged to use them as sources of inspiration as they develop their own documentary styles. Students are required to attend a production lab and outside film screenings. *Prerequisite: COMM 30.* (5 units)

133B. Expanded Cinema Production

As a medium, film/video is constantly evolving both in form and in content. This course considers the shift from traditional cinema to new frontiers of interactive, performative, and new media. A fusion between visual art, new technologies, and the moving image will redefine the relationship of the spectator to the film. Environments will be created through the combined use of image, sound, and physical elements, which will immerse the viewer on emotional, intellectual, and physical levels. Students will have an opportunity to shoot on film, which offers a classic way to learn the art of filmmaking through understanding exposure, lighting, and coverage. This course will expand your consciousness as you step into the world by blurring boundaries between mediums and working individually and collaboratively. Preference given to communication majors and minors. *Prerequisite: COMM 30.* (5 units)

134B. Master Shot/Studio Production

The principles and aesthetics of filmmaking within the confines of a studio/sound stage are examined. The fluid master shot, multiple camera shooting, studio lighting, and audio are just some of the techniques that are explored. Students work in small groups to produce a short film, television show, or musical production. All students are required to attend a production lab and possible outside screenings. Preference given to communication majors and minors. May be repeated as topics vary. *Prerequisite: COMM 30.* (5 units)

135B. Editing and Cinematography

The principles and aesthetics of editing and cinematography are examined in great detail. In cinematography, students learn the fundamental principles of lighting techniques in studio and on location and will be

trained in economy lighting, which relies on minimal equipment, as well as key lighting theories. In editing, students practice the key techniques and styles of editing, including montage, parallel cutting, and ellipsis, while also studying guiding theories of editing. All students are required to attend a production lab and outside screenings. Preference given to communication majors and minors. May be repeated as topics vary. *Prerequisite: COMM 30.* (5 units)

136A. Genre, Auteur, and Narrative Strategies

Why do movies and television shows look and sound the way they do? Why do specific directors/writers tell audio visual stories and adopt personal stylistic signatures? What is authorship in film and television? What makes a comedy a comedy and a Western a Western? This course examines the historical roots and cultural implications of telling stories with moving pictures in certain genres or by specific filmmakers. Film/television theory and criticism is used as a means of examining the nature of visual narrative styles and auteurship. May be repeated as topics vary. All students are required to attend outside film/video screenings. *Prerequisite: COMM 2 or 2GL.* (5 units)

137A. American Film History/Theory

Explores the development of the American film industry from the perspective of its modes of production, filmic styles, cinema movements, and audiences. This evolution is examined within the context of political, economic, and cultural changes of the past century. May be repeated as topics vary. All students are required to attend outside film/video screenings. *Prerequisite: COMM 2 or 2GL.* (5 units)

138A. Television History/Theory

This course explores the evolution of the television industry in the U.S. and around the world. The development of television is examined in the context of political, economic, and cultural changes of the past century. The course investigates the changing modes of television production as well as the impact of other media technologies on television content, style, and audiences. May be repeated as topics vary. All students are required to attend outside film/video screenings. *Prerequisite: COMM 2 or 2GL.* (5 units)

139A. Global Documentary

This course traces the evolution of documentary filmmaking from its inception by the Lumiere Brothers in the late 1800s to today's nonfiction filmmakers who use this mode of representation in a variety of innovative ways, including advocacy, poetry, historical documentation, exploration, reflexivity, and experimentation. The key moments in the history of the nonfiction film, its main theories, along with the various styles of documentary filmmaking, are explored in depth. *Prerequisite: COMM 2 or 2GL or consent of the instructor.* (5 units)

141B. Advanced Journalism

Advanced news reporting and writing. Emphasis on strategies for public affairs reporting, beat coverage, media ethics, and source development. Includes weekly beat assignments, an enterprise feature, and an immersion journalism project. Arrupe Partnerships participation required. *Prerequisite: COMM 40 or 40EL or consent of the instructor for non-communication majors.* (5 units)

142B. Online/Digital Journalism

Focuses on journalism's efforts to deliver news that can reach, include, and engage the public across multiple digital platforms. In this fast-paced course, students study online news practices and ideas under development, evaluating digital tools, sites, and models. Students will plan, report, write, and produce in various digital media formats that may include text, audio slideshows, long-form audio stories, and their own portfolio website. Emphasis on improving journalism skills. *Prerequisite: COMM 40 or 40EL.* (5 units)

143B. Special Topics in Journalism

Sports, features, lifestyle, science, editorial writing, etc. Course focus shifts as instructor and topics change each quarter. Students may repeat course for credit. *Prerequisite: COMM 40 or 40EL.* (5 units)

144B. Broadcast Journalism

Students research, write, shoot, edit, and report radio or television news. Students produce news packages and larger news programs. At times, the course mimics a news day from production planning to the actual newscast. At other times, the course replicates the television magazine model of production. All students are required to attend a weekly production lab. *Prerequisites: COMM 30 and COMM 40 or 40EL.* (5 units)

145B. Legal Journalism

This course focuses on legal journalism and legal affairs reporting. Students will learn to report and write about current legal topics and courtroom decisions, and how they affect the lives of ordinary citizens. In addition, students will learn how the civil and criminal justice systems work and how to access public records. May be repeated as topics vary. *Prerequisites: COMM 40 or consent of instructor.* (5 units)

146B. Magazine Journalism

Includes story development, market analysis, long-form journalism, investigative reporting techniques, query efforts, and sophisticated writing approaches for magazines. *Prerequisites: CTW 1 and 2 and COMM 40 or 40EL or consent of instructor for non-communication majors.* (5 units)

147A. Theory of News

Introduction to the history of mass media news in the U.S. Analysis of forces that shape journalism today and how to identify their influence in news reports. Theories of journalism's role in the democratic process. Ethical dilemmas posed by contemporary news. (5 units)

148B. Multicultural Journalism

This course involves learning about and interacting with multicultural audiences, the subjects of interest to them, the sources who animate the stories about those subjects, and the products of those stories. Emphasis will be on journalistic reporting and writing, media critique, and oral history. *Prerequisite: COMM 40 or 40EL.* (5 units)

149A. Political News

Focused primarily on the analysis of ongoing campaign coverage, the course will also examine historical and comparative aspects of politics in the media. Regular consumption of media coverage of politics required. *Prerequisites: CTW 1 and 2.* (5 units)

149B. Science News: How to Report

If you're curious about the world and how things work, science writing can put you in the middle of the action. This course will focus on hot topics such as sexuality, identity, health, and environmental sciences. Science writing is in high demand in journalism, marketing, and other disciplines. Learn how to identify important news, report on research and key participants, and show audiences why science should matter to them. This course welcomes both humanities and science majors to explore news developments and their underlying research, as well as identify the social, ethical, and legal issues raised by science. Students will analyze other work and write their own. *Prerequisites: CTW 1 and 2.* (5 units)

150B. Public Relations Theories and Principles

This course explores the theories and concepts of public relations and business communication today, including program planning, development, execution, and measurement of media relations, traditional PR tactics, and new online digital channels and tools. Communication theory, business planning, effective presentation, writing, critical thinking, integrated marketing communications, fundamentals of business, and

business ethics are emphasized. Guest lecturers from corporate America and business practice exercises provide real-world experience in applying theories and concepts. *Prerequisites: COMM 2 or 2GL and COMM 40 or 40EL.* (5 units)

151A. Organizational Communication

This course provides students with an introduction to the principles of communication in organizations. Specifically, the class will explore the role of communication in achieving organizational and individual goals, theory and practice of communication in organizations, and techniques to enhance understanding among individuals in organizations. A variety of organizations will be explored including corporations, small businesses, nonprofits, and social/fraternal organizations. Practical application of contemporary theories will provide students with the skills needed for successful communication in their current and future organizations. Topics will include the role of organizational culture, conflict management, work/life balance, human resource management, stress, globalization, and the role of social justice in the contemporary organization. *Prerequisite: COMM 1.* (5 units)

152B. Public Relations Strategies and Practices

This advanced course in public relations deepens students' understanding of strategies, processes, procedures, and practices that build two-way relationships with a broad range of constituencies. The course prepares students to practice public relations in many contexts, including political discourse; motivating groups to support social justice; explaining the value of products or services; and providing tightly targeted audiences with highly specialized technical or business information. A heavy emphasis is placed on learning to define, develop, and implement public relations objectives, strategies, and tactics. Guest lecturers and a real-world class project round out the learning experience. *Prerequisites: COMM 2 or 2GL and COMM 40 or 40EL. COMM 150B is recommended, but not required.* (5 units)

161B. Communication Media and Technology in Education

In North America, we tend to associate communication media with entertainment or business. This course explores alternative uses of communication, particularly as applied to education. Examines theory and practice in distance education (radio schools, satellite service), instructional television fixed service (ITFS) in local schools, and interactive video computer-assisted education. Examination of current implementations of the technologies. Class project will consist of designing and implementing (as far as possible) some educational use of communication (for example, an instructional show or a Web application). *Prerequisite: COMM 12 or consent of instructor.* (5 units)

162B. Visual Cultural Communication

Students use photography to explore questions about how to represent diverse cultures and identities. Students advance their digital photography skills while reflecting on the ethics of representing others and themselves, informed by readings on cultural theory and visual communication theory. In their final projects, students create and share images from local communities in online exhibits. Prior knowledge of digital photography and creation of online content are helpful, but not required. (5 units)

163A. Internet Communities and Communication

Examines cyberspace as home to many types of collectives from groups on social network sites to employees of corporations, religious groups to online fan sites, cyberactivists to citizens of as-yet-unborn nations. Premised on the understanding that communication and community have been fundamentally linked in history, this course examines communication practices in a range of Internet communities with a focus on (1) the shaping

of ethnic, religious, and national identities online; (2) the dynamics of transnational communities; and (3) the logic of technological and communication networks on the World Wide Web and Internet. Addresses the philosophical implications of communication practices among Internet communities for notions of identity. *Prerequisite: COMM 2 or 2GL.* (5 units)

164A. Race, Gender, and Public Health in the News

When the news formula is, "Lose weight, get more energy, and have better sex," do our communities thrive? This course examines the news media's role in the public health sphere as part of an increasingly diverse society. Do self-help and medical trend stories worsen inequalities in health and life expectancy across race, ethnicity, gender, or sexual orientation? In this course, we will study the influence of existing news coverage on the discourse about science, public health, and our bodies, and explore new ways to investigate the landscape of health opportunities in a community. *Also listed as WGST 116. Prerequisites: CTW 1 and 2.* (5 units)

168A. Race, Gender, and Politics in the News

Journalism aims to serve democracy by informing the public about important issues, lifting up seldom-heard voices, and encouraging participation by all. This course examines the news media's role in the political sphere as part of an increasingly diverse society. How does news media influence our perceptions about race and gender, particularly in the political realm? How well do journalists report on proposals, policies, and practices that influence people differently according to race or gender? This course explores these questions and more. *Also listed as WGST 117. Prerequisites: CTW 1 and 2 or COMM 40 or 40EL.* (5 units)

169A. Special Topics in Communication Technology

This course focuses on the intersection of communication theory/research and issues of technology. May be repeated for credit as topics vary. *Prerequisite: Consent of instructor.* (5 units)

170A. Communication Law

An introduction to communication law and regulation. Emphasis on first amendment rights to freedom of speech and information gathering, as well as the law of defamation, privacy, copyright, obscenity, harms to the public, and telecommunications regulation. Students gain experience in applying the law by preparing and delivering legal arguments in a moot court exercise. (5 units)

171A. The Business of Media

A critical examination of how media industries work. The class will explore issues such as historic and new financial models, power structures, relationships between media producers and distributors, emerging media markets, audience economics, and the role of government regulation and policy. The course will focus on some of the following industries: Hollywood film and television, journalism, and online media. (5 units)

172A. Communication and Sport

Communication is a critical component of watching and playing sports, and at the same time, sports is a lens through which we view different aspects of our cultures and interactions. This course examines sports as a component of our culture, investigating issues of race, gender, and power; the connection between spectator sports and media; and communication's role in sports participation, including topics such as leadership, motivation, cohesion, and teamwork. Students will gain a better understanding of selected communication principles and discover new ways to talk about sports. (5 units)

173B. Sports Media Production

Introduces students to the production of sports programming. Includes producing, interactive elements, graphics and photographs, shooting, editing, announcing, and reporting for live sports programming as well as recorded interviews and reports. Students will produce content for multiple media, including television, the World Wide Web, and arena scoreboards. Some experience with cameras, audio, production, reporting, graphics, and/or editing is recommended. Production will occur on campus in cooperation with Santa Clara's Department of Athletics. (5 units)

174A. Introduction to Sports Leadership

This course is an overview of the academic pursuit of leadership as it pertains to the sports industry. Students will be presented with classical and contemporary perspectives on leadership and be challenged to evaluate the role of leadership in organizations and daily life. After successful completion of this course, students will be able to articulate and evaluate both classical and contemporary leadership theories; analyze leadership styles from the most frequently used perspectives in the field today; recognize the impact of sports organizations on local, regional, national, and world communities; identify and discuss the changing landscape of sports organizations and the role leadership is playing in that transformation; communicate a personal leadership philosophy; and formulate a professional growth plan as a leader. (5 units)

175A. Theology of Communication

Do the practices of communication have any consequences for theology? We know that St. Paul claims that "faith comes from hearing" and that Christian theology has taken communicative expression seriously throughout the centuries. This course examines how theology has used communication, how it has evaluated communication, how communication contributes to theology, and how new communication technologies have a contemporary impact on theological and religious practices. Examines a variety of communication expressions (art, music, poetry, television programs, films, websites) as religious expressions; students will create their own theological expression using some contemporary medium. (5 units)

176A. Biology of Human Communication

This course examines the ways in which human communication affects, and is affected by, processes that occur in our bodies. This course starts by exploring the basic anatomy of the human body as it relates to communication, including the brain, nervous system, facial musculature, endocrine system, cardiovascular system, and the immune system. From there, this course explores how those body systems are implicated in a range of communicative phenomena, including emotion, conflict, stress, burnout, interpersonal relationships, social structure, organizational culture, relationship satisfaction, and sexual behavior. Finally, this course explores the impact of innovative healthcare treatments that utilize communication interventions, including providing social support, human affection, and organizational development. (5 units)

179A. The Internet, Faith, and Globalization

From online shrines to religious e-commerce, historical accounts of religion online to forums for discussing religious practice, the Internet has transformed numerous aspects of faith. This course examines the central role of the Internet in shaping Hindu, Muslim, Sikh, Christian, Jewish, Zoroastrian, and other religious beliefs, practices, and identities in a global era. It focuses on three overlapping objectives: (1) how the Internet reflects various, often competing, narratives of religious identity; (2) how these narratives are similar to and different from offline expressions of faith; and (3) how faith online can be understood in terms of opportunities provided and challenges posed by

globalization. *Prerequisites: COMM 2 or COMM 2 GL, COMM 12, or permission of instructor.* (5 units)

180A. Global Audiences

Explores how the globalization of TV and Internet news, and entertainment and film have had an impact on audiences in different cultures. Examines the available research and theory on audience exposure and impact from a cultural, value, and social perspective, and how cultural and political movements and/or government policy grow in reaction to the invasion of a culture's symbolic space by global media messages. *Prerequisite: COMM 2 or 2GL.* (5 units)

181A. Global Media Industries

Examination of how media industries have been transformed into global businesses and how technologies of distribution by cable, satellites, and the Internet have brought almost all people into a global symbolic space; theories of political economy and audience reception are applied. Exploration of how groups and governments have responded to the phenomenon and what they do to protect their cultural and political sovereignty. *Prerequisite: COMM 2 or 2GL.* (5 units)

182A. Global News Issues

Explores the changes that have taken place in news coverage on a global basis in the last decade, especially television and Internet news; how government policies of control of information have changed in reaction to new technologies of information distribution; and how internal politics may be affected by international media attention. *Prerequisite: COMM 2 or 2GL.* (5 units)

183A. Communication, Development, and Social Change

How does communication content and technology solve problems of global poverty and social change? This course addresses the theories, policies, and practices that help explain the success or failure of new communication technologies in helping the disenfranchised achieve a better life for themselves. Hands-on work with real cases will give students a chance to think through the complicated process of social change. *Prerequisite: COMM 2 or 2GL.* (5 units)

184A. Postcolonial Identity and Communication

Paying careful attention to the meaning of the term "postcolonial" in different historical and geographical contexts, this course undertakes a critical analysis of media representations of national and cultural identity in postcolonial societies in Africa, Latin America, and Asia. Evaluates the ways in which media constructions of national identity intersect with understandings of gender, race, religion, and ethnicity. A key focus area of the course is the experience of diasporic postcolonial communities as represented in media. *Prerequisite: COMM 2 or 2GL.* (5 units)

185A. New Media and Communication

This course examines the dynamics of communication in new media networks and forums, covering the overlapping categories of social networks, social media, blogs, microblogs, portals, and collective knowledge initiatives such as Wikipedia. We will analyze communication practices in new media with a focus on the following four areas: (1) convergence and links between forms of media and technology, such as mobile phones, computers, and books; (2) changing conceptions of self and community; (3) emerging of paradigms of creative collaboration and artistic and intellectual production; and (4) posed challenges about privacy, copyright, and intellectual ownership. We will examine these areas from a global perspective, keeping in mind both the global nature of new media networks and communities, and the particular trajectories of new media communicative practices in different global contexts. In this regard, we will also address the social, ethical, and political consequences of the "digital divide" between those who are

networked and connected in this world and those who lack access to it. *Prerequisite: COMM 2 or 2GL.* (5 units)

186B. Global Interpersonal Communication

This course explores ways to reflect on, connect, and communicate study abroad experiences. Special focus on developing intercultural communications competence in interpersonal, socioeconomic, historical, and geopolitical contexts. Students will produce Web-based educational material derived from academic research and study abroad experience. *Prerequisite: Prior experience studying outside the U.S. during college, including immersion trips or study abroad programs.* (5 units)

187A. Cinema in the Age of Globalization

This course explores how national cinemas and individual filmmakers have responded to American global film hegemony. Counter cinema is seen not only as a mode of artistic self-expression, but also as a cultural practice whose role is crucial in shaping national cultures. Of particular interest is the development of film traditions such as neorealism, the French New Wave, Third Cinema, exilic/diasporic cinema, and other film movements that have emerged as an alternative to Hollywood's commercial cinema. *Prerequisite: COMM 2 or 2GL or consent of the instructor.* (5 units)

188A. The Fantastic in Film and Literature

This course investigates how filmmakers and writers from around the world have pushed the boundaries of realism to achieve narrative and cinematic styles in storytelling that are loosely referred to as "the fantastic." Some of the genres studied in this course include fantasy, magical realism, surrealism, science fiction, the gothic, and cyberpunk. *Prerequisite: COMM 2 or 2GL or consent of the instructor.* (5 units)

189A. Communication, Citizenship, and Globalization in Asia

Citizenship is about membership. It includes processes of inclusions and exclusions. With abundant transnational business, treaties, and marriages, the selecting process is complicated by various local and global relations formed in the past to present. We will explore this process in the Asian region from historical, sociopolitical, cultural, and economic perspectives. We will wrestle with questions such as: Is citizenship an individual or collective matter? Is citizenship a universal concept? Is it useful? What does it mean to be a citizen in various Asian nations? You will work on a project on how citizenship is communicated in a nation-state of your interest. (5 units)

190. Journalism Practicum

For writers and editors of *The Santa Clara.* Students review the student newspaper, offer practical advice, and gain experience in journalism. *The Santa Clara* staff members assist in teaching students skills in news, sports, feature writing and reporting, and techniques of design and production. *Class members meet once a week and are expected to spend at least three hours a week in newspaper work.* (1–2 units)

191. Independent Filmmaking Practicum

This course helps emerging filmmakers, artists, and designers in all disciplines; entrepreneurs; students focusing on marketing, public relations, and journalism; and film lovers to advance their skills in the art and business of filmmaking and media. Students produce real-world short projects: fiction, commercial, and documentary. The practicum is designed to give students hands-on experience in producing, directing, cinematography, production design, editing, sound, music, acting, and screenwriting. Students will also help organize the Genesis student film festival. *Prerequisite: COMM 30 or consent of instructor.* (1–2 units)

192. Online Journalism Practicum

Designed to get students involved with journalism via digital media. Students report, write, edit, broadcast, and promote news, arts, and entertainment content. Work may air on KSCU, in *The Santa Clara* student newspaper, websites, or the practicum blog. Students will also learn the basics of digital recording and receive a basic introduction to studio production and new media. (1–2 units)

193. Yearbook Practicum

For editors and principal staff members of the University's yearbook, *The Redwood.* Principles of photojournalism, magazine graphic design, and book production. *The Redwood* staff members assist in teaching students skills in reporting, writing, production, and design. *Class members meet once a week and are expected to spend at least three hours a week in yearbook work.* (1–2 units)

194. Forensics Practicum

Supervised activity in forensics. Includes competition in debate and various speaking events: persuasive, expository, extemporaneous, impromptu speaking, and oral interpretation. Field trips required. (2 units)

194P. Peer Educator

This course is offered for students who assist in teaching courses in the department for academic credit rather than pay. (1–2 units)

195. Sports Media Production Practicum

Students gain practice in the production of sports programming. Includes producing, interactive elements, graphics and photographs, shooting, editing, announcing, and reporting for live sports programming as well as recorded interviews and reports. Students will produce content for multiple media, including television, the World Wide Web, and arena scoreboards. Some experience with cameras, audio, production, reporting, graphics, and/or editing recommended. Production will occur on campus in cooperation with Santa Clara's Department of Athletics. (1–2 units)

196. Senior Capstone

Digital Filmmaking Capstone

Students enrolled in this capstone work in small production teams to produce 12–15 minute films. The type or style of these projects (fiction, documentary, or studio-based) is determined by which upper-division production courses the team members have taken. Heavy emphasis on preproduction planning, script development, audience assessment, division of labor, budgets, and building a collaborative vision for the project. Students also write an extended essay that integrates their production practices with film theory. *Prerequisites: All lower-division courses required for communication majors and required upper-division courses as determined by the instructor.* (5 units)

Journalism Capstone

The goal of the journalism capstone project is to produce a 3,500-word magazine piece of publishable quality on a significant community issue. (Students may choose to produce their finished piece in video format, by permission of instructor.) Students will submit a written story proposal, including a preliminary list of sources and projected reporting strategy, perform a comprehensive literature search, and thoroughly research the story via interviews, archival research, and first-hand observation. Students will be required to edit their peer's work throughout the quarter as well as submit multiple drafts of the final project. *Prerequisites: All lower-division courses required for communication majors and required upper-division courses as determined by the instructor.* (5 units)

Public Relations Capstone

This capstone focuses on the application of communication, business, and core academic concepts and theories to the practical aspects of business, corporate communications, and public relations including the basic skills, planning/execution process, and the roles of the various functions that compose public relations within a corporate or business entity. Topics include integrated marketing communications, branding, marketing mainstream media, and citizen's journalism. Business ethics and social responsibility are heavily emphasized. *Prerequisites: All lower-division courses required for communication majors and required upper-division courses as determined by the instructor.* (5 units)

197. Senior Thesis

This course leads students through a major communication research project, including defining research questions, conducting a literature review, gathering and analyzing data, and public presentation of findings. Most sections are focused on a common theme or topic defined by the instructor. *Prerequisites: All lower-division courses required for communication majors and required upper-division courses as determined by the instructor.* (5 units)

198. Internship

A forum where students can learn how they can best apply classroom instruction to their career objectives through academically supported work experience. Internships at Santa Clara University are closely monitored for appropriateness and practical application. Internships should encourage career skills and professional growth; they should not be just another job. Internships are an important and integral part of the communication craft and serve to introduce the student to the range of opportunities afforded a degree in the discipline. Students are expected to represent the University in a professional manner and to act responsibly with the client and the assignments. (1–5 units)

199. Directed Research/Creative Project

Students arrange to work with a faculty member for directed reading or a research project in communication theory, research, ethics, etc. Creative projects may also be arranged in television, print, or another applied area. *Prerequisites: Written proposal, course meeting schedule, and readings must be approved by instructor and chair prior to registration.* (1–5 units)

DEPARTMENT OF ECONOMICS

Professors Emeriti: Henry G. Demmert, Thomas Russell, Thaddeus J. Whalen Jr.
Professors: Mario L. Belotti (*W.M. Keck Foundation Professor*), Alexander J. Field (*Michel and Mary Orradre Professor*), John M. Heineke, Kris J. Mitchener (*Robert and Susan Finocchio Professor*), William A. Sundstrom
Associate Professors: Linda Kamas (*Department Chair*), Michael Kevane, Serguei Maliar, Helen Popper, Dongsoo Shin
Assistant Professors: Christian Helmers, John Ifcher, Thuy Lan Nguyen, Gonçalo Alves Pina, Teny Shapiro
Lecturer: Adina Ardelean

As one of the social sciences, economics studies how the choices we make as individuals—as consumers and producers, as savers and investors, as managers and employees, as citizens and voters—combine to determine how society uses its scarce resources to produce and distribute goods and services. This practical discipline provides insights into important issues such as the determinants of wealth and poverty; unemployment, inflation, international trade, and economic growth; and success and failure in the marketplace. The rigorous, systematic analysis that the study of economics brings to bear on these and other real-world issues provides excellent preparation for careers in both the private and the public sectors, as well as for graduate study in economics, business, public policy, and law. Economics graduates pursue varied careers in business, law, banking and finance, government service, education, and private consulting. Students considering graduate study in economics leading to a master's or doctoral degree are strongly encouraged to meet with their advisor as early as possible to plan an appropriate course of study.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum and College of Arts and Sciences requirements for the bachelor of science degree, students majoring in economics must complete the following departmental requirements:

- ECON 1 or 1E, 2, and 3
- MATH 11 and 12, or MATH 30 and 31
- OMIS 40 or MATH 122 or MATH 8
- ECON 41 and 42
- ECON 113, 114, 115, and 181 or 182
- Five upper-division economics electives, at least two of which must be completed after ECON 113 and 115

REQUIREMENTS FOR THE MINOR

Students with a minor in economics through the College of Arts and Sciences must complete the following requirements:

- ECON 1, 2, 3, 113, and 115
- Two additional upper-division economics courses
- MATH 11 or 30

MATHEMATICAL ECONOMICS CONCENTRATION

Economics majors desiring a concentration in mathematical economics must complete the following requirements in addition to the regular requirements for the major:

- All of the following courses: MATH 11, 12, 13, 14, 22, 53 (MATH 122 and 123 are strongly recommended)
- Three out of the following courses: ECON 170, 171, 172, or 174 (these courses also count as electives required for the major)

Note: Students completing the mathematical economics concentration take MATH 11 and 12 instead of MATH 30 and 31.

LOWER-DIVISION COURSES

1. Principles of Microeconomics

Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; and government policies and regulations affecting markets. (4 units)

1E. Principles of Microeconomics

Special section of ECON 1 emphasizing environmental applications of economics. Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

2. Principles of Macroeconomics

Determinants of national income and product in the long run and short run; inflation, unemployment, and business cycles; monetary and fiscal policies; and economic growth. *Prerequisite: ECON 1.* (4 units)

3. International Economics, Development, and Growth

Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. *Prerequisite: ECON 2.* (4 units)

3H. International Economics, Development, and Growth

Honors section. Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. *Must be in the University Honors Program or Leavey Scholars Program, or have permission of instructor. Prerequisite: ECON 2.* (4 units)

41. Data Analysis and Econometrics

Introduction to statistical methods for analyzing economic data. Emphasis on applications of multiple regression and establishing causality in observational data. *Prerequisites: ECON 1 and 2, MATH 11 or 30, and MATH 8 or OMIS 40 or equivalent; Economics majors only, or by permission of instructor. Must enroll simultaneously in ECON 42.* (4 units)

42. Data Analysis Applications

Hands-on course in obtaining and analyzing data using statistical software. *Prerequisites: ECON 1 and 2, MATH 11 or 30, and MATH 8 or OMIS 40 or equivalent; Economics majors only, or by permission of instructor. Must enroll simultaneously in ECON 41.* (2 units)

UPPER-DIVISION COURSES

Prerequisites: Unless otherwise noted, ECON 1, 2, and 3 are required for all upper-division economics courses.

101. Resources, Food, and the Environment

Exploration of the relationship among food production, resource use, and the environment. Topics include biotechnology, the green revolution, resource depletion, environmental degradation, and food safety. *Prerequisites: None.* (5 units)

111. Economics of the Environment

Economic analysis of environmental issues and government policies for environmental protection. Applications to important environmental issues, such as global climate change, water and air pollution, hazardous wastes, biodiversity, and endangered species. *Prerequisite: ECON 1.* (5 units)

113. Intermediate Microeconomics I

Theory of rational individual choice and its applications to decision making, consumer demand, and social welfare; and economics of uncertainty and information. *Additional prerequisite: MATH 11 or 30.* (5 units)

114. Intermediate Microeconomics II

Theory of the firm; determination of price and quantity by profit-maximizing firms under different market structures; strategic behavior; general equilibrium; market failure and government policies. *Additional prerequisite: ECON 113, MATH 11 or 30.* (5 units)

115. Intermediate Macroeconomics

Macroeconomic analysis, emphasizing modern economic models for explaining output, employment, and inflation in the short and long run. Macroeconomic policymaking, including fiscal and monetary policy. *Additional prerequisite: MATH 11 or 30.* (5 units)

120. Economics of the Public Sector

Microeconomic analysis of the role of government in the market economy. Supply of public goods and services, government's role in controlling externalities and regulating private industry, and the economics of the political process. (5 units)

122. Money and Banking

Theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis on the relationship between the monetary and banking system and the rest of the economy. (5 units)

126. Economics and Law

Economic analysis of law and legal institutions focusing on the common law areas of property, contracts, and torts. (5 units)

129. Economic Development

Causes and consequences of economic growth and poverty in less developed countries; analysis of the role of government policies in economic development. (5 units)

134. African Economic Development

Examination of the economic development of sub-Saharan African countries, with particular emphasis on the relationships between economic growth and their social, political, and economic structures. (5 units)

135. Gender Issues in the Developing World

Explores the gendered nature of poverty in the developing world, with special focus on sub-Saharan Africa, using applied statistical analysis, and economic theory. *Also listed as WGST 121. Additional prerequisite:* ECON 41and 42 or OMIS 41 or permission of instructor. (5 units)

136. 20th-Century Economic History

The development of the U.S. economy during the 20th century. Topics include the causes and consequences of economic growth, the Great Depression, the rise of government regulation, the changing role of women in the workforce, and the increasing internationalization of markets during the postwar period. *Additional prerequisite: ECON 115.* (5 units)

137. World Economic History

Development of Western and non-Western economies since the late 19th century. Topics include globalization and economic integration, convergence and divergence in economic growth across countries, international monetary systems, and the impact of alternative policies and institutional regimes on economic performance. (5 units)

138. History of Economic Thought

Origins and evolution of economic ideas in their historical and philosophical context. Emphasis on the theories of Adam Smith, David Ricardo, and Karl Marx, as well as the emergence of modern microeconomics and macroeconomics in the 19th and 20th centuries. (5 units)

139. American Economic History

Study of growth and institutional change in the U.S. economy since colonial times. Topics include early industrialization, the economics of slavery, and the rise of large business enterprises and labor unions. (5 units)

150. Labor Economics

Study of labor productivity, incomes, and employment, and how these are affected by labor organizations and labor legislation. *Additional prerequisites: ECON 113 and OMIS 41 or ECON 41 and 42.* (5 units)

160. The Economics of Poverty and Inequality

Examines theories and evidence regarding poverty and economic inequality in the United States. Evaluates alternative public policies aimed at combating poverty. (5 units)

165. Economics and Justice

Study of theories of economic justice with applications to economic issues and policy. Alternative theories to be considered include utilitarian, libertarian, welfare-economic, egalitarian, feminist, and religious moral perspectives. Topics include poverty and income distribution; economic inequality and mobility by class, gender, and race; the role of the government in promoting justice; effects of globalization; and justice under different economic systems. *Additional prerequisite: ECON 113.* (5 units)

166. Race, Ethnicity, and Gender in the U.S. Economy

Analysis of current and historical differences in economic status by race, ethnicity, and gender; theory and evidence of discrimination; role of government policies. *Additional prerequisite: ECON 173 or ECON 41 and 42.* (5 units)

170. Mathematical Economics: Static Optimization

The standard classical models of microeconomic and macroeconomic theory are generalized and reformulated as mathematical systems. The primary goal of the course is to extract empirically testable propositions that would permit testing model veracity. Linear algebra and the tools of calculus including power series, the implicit function theorem, envelope theorems, and duality are used as the basis of analysis. *Additional prerequisites: MATH 11, 12, and ECON 113 or 114 or permission of instructor.* (5 units)

171. Mathematical Economics: Dynamic Optimization

The course will discuss the mathematical tools needed to analyze dynamic situations in economics. Applications to optimal decision-making over time with respect to natural resource allocations, manufacturing and storage paths, consumption/investment decisions, and stability of economic systems are discussed. Topics include optimal control, dynamic programming and calculus of variations. *Additional prerequisites: MATH 11, 12, and ECON 113 or 114 or permission of instructor.* (5 units)

172. Game Theory

This course introduces game theoretical concepts and tools. Theoretical topics include Nash equilibrium, Subgame perfection, Bayesian-Nash equilibrium, Harsanyi transformation, commitment, and Perfect Bayesian Equilibrium. Applications to topics such as oligopoly, strategic investment, and agency theory are discussed. *Additional prerequisites: MATH 11, 12, and ECON 113 or 114 or permission of instructor.* (5 units)

173. Applied Econometrics

Statistical analysis of cross-section and panel data, with economic applications. Topics include identification of causal effects using panel methods, instrumental variables, and quasi-experimental techniques; models with binary outcomes; variable selection. Hands-on analysis of data using statistical software. *Additional prerequisites: ECON 41, 42, 113, and 114.* (5 units)

174. Applied Time Series Analysis

Methods to forecast and interpret hypotheses about time-varying economic variables. Topics include stationary and non-stationary series; characterizing time series in tractable ways; separating regular (trend and seasonal) and irregular parts of a time series; and examining identification and estimation strategies. Synthesize, present, and evaluate time series analysis to assess credibility. *Additional prerequisites: ECON 173 or ECON 41 and 42 and ECON 115.* (5 units)

181. International Trade

Analysis of the theories of international trade and strategic interactions; assessment of the empirical patterns of trade; analysis of the political economy of protection, and applications to policies guiding international competition. *Additional prerequisite: ECON 113.* (5 units)

182. International Finance and Open Economy Macroeconomics

Analysis of the monetary aspects of international economics, including the balance of payments, exchange rates and foreign exchange markets, speculative attacks and currency crises, and the implications of international trade and capital flows for macroeconomic activity and policy. *Additional prerequisite: ECON 115.* (5 units)

185. Economics of Innovation and Intellectual Property

The economic determinants and consequences of innovation. Topics include research and development, joint ventures, patents and other intellectual property, university-industry and government-industry collaboration, and the relationship between antitrust and other regulatory policies and technological advances. *Additional prerequisite: ECON 114.* (5 units)

190. Economics Seminar

Seminar on contemporary economic theories and problems. *Admission by invitation only.* (5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisite: Written proposal must be approved by instructor and chair at least one week prior to registration.* (1–5 units)

DEPARTMENT OF ENGLISH

Professors Emeriti: James P. Degnan, Francis X. Duggan, Christiaan T. Lievestro, Charles T. Phipps, S.J., Fred D. White
Professors: Terry L. Beers (*Associate Chair*), Phyllis R. Brown, Michelle Burnham (*Department Chair*), Julianna Chang (*Associate Chair*), Diane E. Dreher, Eileen Razzari Elrod, Ronald T. Hansen (*Gerard Manley Hopkins, S.J. Professor*), John C. Hawley
Associate Professors: Mary Judith Dunbar, Marilyn J. Edelstein, Andrew J. Garavel, S. J., Juan Velasco
Assistant Professors: Cruz Medina, Theodore J. Rynes, S.J., Tricia Serviss, Julia Voss
Acting Assistant Professor: Amy Lueck
Senior Lecturers: Simone J. Billings, Sherry Booth, Stephen Carroll, Susan Frisbie, Kirk Glaser, Cynthia Mahamdi, Claudia Mon Pere McIsaac, Robert Michalski, Tim Myers, Aparajita Nanda, Donald Riccomini, Cory Wade
Lecturers: Theresa Conefrey, Melissa Donegan, Denise Krane, Michael Lasley, Robin Tremblay-McGaw

The Department of English affords students a rich undergraduate education in the liberal arts centered on literature, cultural studies, and the art of writing. Critical or creative writing projects are integral to every course in the English major. Students and faculty in the English Department discuss and write about British, American, and global literatures, new media, and film. A range of theoretical approaches are used, sometimes with a focus on visual rhetoric and cultural studies. The department also offers the Creative Writing Program, which provides students with a coherent course of study in the writing of poetry, fiction, and creative nonfiction. The English major prepares students to read and write critically, to bring intellectual flexibility to academic and professional problems, and to enter the work force as individuals with trained skills in analysis and self-expression.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of arts degree, students majoring in English must complete the following departmental requirements:

- Three foundation courses: ENGL 14, 15, and 16
- Two historically grounded literary or cultural studies courses; at least one of these courses must be from a period before 1800
- A three-course concentration in literary/cultural studies; at least two of these courses must be upper-division
- A three-course concentration in writing (professional writing and new media, or creative writing); at least two of these courses must be upper-division
- Among the courses in the literary/cultural studies concentration or the writing concentration, at least one course must be from the following list: 102, 103, 105, 106EL, 108, 120, 121, 123, 124, 125, 128, 129, 133, 134, 138, 140, 141, 146, 147, 148, 149, 150EL, 152, 153, 154, 155, 159, 161, 162, 164, 165, 169, 174, 177, 180, 184, 186, 187, 188, or a course approved by the chair to meet learning outcomes in the application of theoretical perspectives.

- One upper-division course in theory, or gender/sexuality, or ethnic/global studies. (This course may also be used to meet another requirement.)
- One senior seminar

Each student's plan of study should be discussed well in advance with an assigned advisor. To this end, the student should write a memorandum of understanding to be agreed upon with the advisor.

REQUIREMENTS FOR THE MINOR

Minor in English

Students must fulfill the following requirements for a minor in English:

- Three foundation courses: ENGL 14, 15, and 16
- Five English electives; four of which must be upper-division courses

Minor in Creative Writing

Students must fulfill the following requirements for a minor in creative writing:

- Two introductory courses: ENGL 71 and 72
- Two practicum courses: ENGL 91 and 191
- Three electives from the following list: ENGL 73, 126, 127, 170, 171, 172, 173, 175
- One additional advanced course: ENGL 171 or 172

PREPARATION IN ENGLISH FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach English in California secondary schools must pass a subject-area examination in English. The teaching credential itself requires the completion of an approved credential program, which can be completed as a fifth year with student teaching, or through a summer program and internship in conjunction with the undergraduate pre-teaching program. Students who are contemplating secondary school teaching in English should consult with the coordinator in the Department of English as early as possible.

LOWER-DIVISION COURSES

Note: Authors and topics listed in the following course descriptions are typical rather than definitive. They are not necessarily included in a specific course every time it is offered, and others not listed here may be included. Some courses are offered every year; all, ordinarily, are offered at least once every two years.

1A. and 2A. Critical Thinking & Writing I and II

A two-course themed sequence featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. The second course will feature more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. Themes address a variety of contemporary topics. *Successful completion of CTW I (ENGL 1A) is a prerequisite for CTW II (ENGL 2A).* (4 units each quarter)

1H. and 2H. Critical Thinking & Writing I and II—Honors

A two-course, themed sequence for students in the Honors program featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. The second course will feature more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. Students work intensively on their writing as they study and analyze short works of nonfiction and fiction. Students write primarily expository prose, occasionally researched. (4 units each quarter) NCX

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address cross-cultural contact; nature and imagination; and other topics. *Successful completion of C&I I (ENGL 11A) is a prerequisite for C&I II (ENGL 12A).* (4 units each quarter)

14. Introduction to Literary History and Interpretation

Literature and our understanding of it are constantly changing. This course surveys canonical and marginalized works in cultural and historical context. It examines the way texts shape and reference each other, and the consequences of technological change. Readings are chosen from literatures available in English in various genres and periods. *Prerequisites: ENGL 1A and 2A.* (4 units)

15. Introduction to Cultural Studies and Literary Theory

Exploration of ways to think about the relationships among literature, culture, and society. Students will experiment with techniques of reading, interpretation, and intervention, with particular emphasis on those methods drawn from critical theory, studies in colonialism, cultural anthropology, feminism, semiotics, gay/lesbian studies, historicism, and psychoanalytic theory. *Prerequisites: ENGL 1A and 2A.* (4 units)

16. Introduction to Writing and Digital Publication

Introduction to current scholarship and major issues in writing studies, including digital literacy and publication. Readings will cover such topics as: civic discourse and rhetorics of social justice; composition and multiliteracies; argumentation and logic; visual rhetoric and principles of design. Participants will publish their coursework in an electronic portfolio. *Prerequisites: ENGL 1A and 2A.* (4 units)

21. Introduction to Poetry

An introduction to the study of poetry through close reading and various kinds of writing, this course works toward a better understanding of the complex effects of poetry and the challenging work of literary criticism and theory. The main goals—greater understanding, appreciation, and enjoyment of poetry—will be achieved through the practice of critical analysis. (4 units) NCX

25. Reading Film

Introduction to key texts and concepts in the study of film, including prominent movements and figures in cinema, the language of film form, essential terms and concepts in film history and criticism, and the technological, economic, and institutional history of the film industry. (4 units)

31. and 32. Survey of American Literature I and II

Historical survey of American literature from its beginnings to the present. (4 units)

35. African-American Literature

Introduction to African-American literatures. *Also listed as ETHN 36.* (4 units)

36. Chicano Literature

Introduction to Mexican American oral and written traditions. (4 units)

37. Native American Literature

Introduction to the study of Native American oral and written traditions, including contemporary works. (4 units)

38. Asian-American Literature

Introduction to Asian-American literatures. (4 units)

39. Multicultural Literature of the United States

Short stories, film, autobiography, and poetry from many cultural communities in the United States. *Also listed as ETHN 70 and WGST 16.* (4 units)

41., 42., and 43. Survey of English Literature I, II, and III

Chronological survey of English literature from *Beowulf* to the present. (4 units)

54. Shakespeare

Readings in selected major plays. Combines writing instruction with a close reading of literary texts to serve as subjects and stimuli for writing. *Prerequisites: ENGL 1A and 2A.* (4 units) NCX

66. Radical Imagination

Survey of the fiction, poetry, speeches, songs, drama, and film belonging to the large and often neglected tradition of political radicalism in the United States. (4 units)

67. U.S. Gay and Lesbian Literature

Development of gay and lesbian literature in the United States from the mid-19th century to the present. Texts may include novels, short stories, poetry, and drama. *Also listed as WGST 34.* (4 units)

68. Literature and Women

Introduction to the study of literature by and about women, with special attention to questions of gender in their social and historical contexts. *Also listed as WGST 56.* (4 units)

69. Literature by Women Writers of Color

A study of U.S. women of color writing in the context of their respective cultural and social histories. Analysis of the interplay of racial images. *Also listed as WGST 15.* (4 units)

71. Fiction Writing

Introduction to the writing of fiction. (4 units) NCX

72. Poetry Writing

Introduction to the writing of poetry. (4 units) NCX

73. Life Writing

Introduction to reading contemporary models of life writing and writing memoir, autobiography, and dramatic nonfiction in a workshop setting. (4 units) NCX

77. Business Communication in Online Environments

Instruction and practice in adapting classical writing techniques to the requirements of the online world, with an emphasis on defining and understanding usability requirements for audience, content, format, interactivity, and graphics. Recommended for business majors and technical writers. *Prerequisites: ENGL 1A and 2A.* (4 units) NCX

78. Writing about Biotech Ethics

This course aims to help students develop strategic reading, thinking, writing, and speaking habits that will substantially improve their performance in BIOL 171 and in future science courses (and jobs) that include significant reading, writing, or public speaking components. *Students must be enrolled in BIOL 171 (Ethical Issues in Biotechnology and Genetics) to enroll in this wrap-around writing course.* (4 units)

79. Writing about Literature and Culture

Instruction and practice in writing critically about selected literary and cultural texts. Topics vary from section to section. Combines writing instruction with a close reading of texts, which serve as subjects and stimuli for writing. May be taken more than once when topics differ. *Prerequisites: ENGL 1A and 2A.* (4 units) NCX

91. Practicum

Reading, viewing and critiquing poetry, fiction, non-fiction, and art for publication in the *Santa Clara Review*, facilitated by student editors and faculty advisor. Students are graded P/NP only. May be repeated for credit. Cross listed with ENGL 191.

UPPER-DIVISION COURSES

100. Literature and Democracy

Studies of selected authors, works, and genres associated with the effort to extend political, social, and economic democracy. Possible major authors include Langston Hughes, Michael Gold, Meridel LeSueur, Tillie Olsen, Kenneth Fearing, Upton Sinclair, Emma Goldman, Frank Norris, Nelson Algren, Richard Wright, Dorothy Allison, Thomas King, and others. (5 units)

101. Linguistics

General survey of the science of linguistics: phonology, morphology, syntax, grammar, and usage. (5 units)

102. Theories of Modern Grammar

Analysis of the basic problems of describing grammatical structure: traditional, structural, and transformational-generative grammars. (5 units)

103. History of the English Language

Origin, structure, and development of the English language. Special attention to the morphology and syntax of Old English. (5 units)

104. Teaching English as a Second Language

Introduction to theories of instruction; survey of methods and materials used in the teaching of English to speakers of other languages. (5 units)

105. Literacy and Social Justice

Examines how people learn to read and write in a variety of multicultural contexts. Explores theories about literacy and cultural identity, and literacy and social inequality. Readings include studies of workplace literacy, literacy variation across cultures in the U.S., and gender and literacy. (5 units)

106. Advanced Writing

Builds on learning in Critical Thinking & Writing courses to deepen familiarity with the values, genres, and conventions relevant to students' major fields of study by providing additional study of and practice in rhetorical theory, composing processes, critical thinking, and information literacy. Assignments will encourage increased sophistication in critical reading and writing with a purpose, including addressing diverse audiences through a range of styles and voices as appropriate for particular disciplines. (5 units)

107. Life Stories and Film

An examination of life stories, theoretical texts, and films. Final project is an original film proposal and trailer. (5 units)

108. Writing About Medicine

Analysis of medical issues, ethics, and controversies. This course provides good preparation for students who are interested in careers in medicine and related health care fields. Assignments consist of multimodal writing that may include essays, digital stories, or website development. Students will research divergent perspectives, learn to disseminate information to lay audiences, and explain and support their stances. Computer and website expertise are not essential but will be part of the learning experience. *Prerequisites: ENGL 1A and 2A.* (5 units)

109. Literature and Performance

Also listed as THTR 172. For course description see THTR 172. (5 units)

110. Classical Tragedy

Also listed as CLAS 181. For course description see CLAS 181. (5 units) NCX

112. Topics in Theatre and Drama

Also listed as THTR 112 or 113. For course description see THTR 112 or 113. (5 units)

113. Studies in British Drama

A study of British drama. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. *Also listed as THTR 111.* (5 units)

116. Shakespeare's Tragedies

An exploration of the great tragedies of Shakespeare's maturity: Hamlet, Othello, Macbeth, and King Lear, with special attention to the theatrical, religious, moral, gender, and political dimensions of Shakespeare's tragedies. *Also listed as THTR 116.* (5 units)

117. Shakespeare's Comedies

An exploration of a selected number of Shakespeare's comedies from his early, middle, and late periods, with particular attention to the social and sexual roles of men and women. *Also listed as THTR 117.* (5 units)

118. Shakespeare Studies

An exploration of a selection of Shakespeare's plays with particular attention to an important topic chosen for focus and specified in the course description subtitle—for example, Shakespeare and Classical Traditions, Shakespeare and Gender, Shakespeare and Justice, Shakespeare's Histories, Shakespeare's Tragicomedies, Shakespeare and Film. May be taken more than once when topics differ. *Also listed as THTR 118.* (5 units)

120. Studies in Comparative Cinema

Comparative study of selected works, in translation if not in English, from more than one linguistic and/or national category, organized by theme, genre, or time period. May be taken more than once when topics differ. (5 units)

121. Studies in American Film

Study of selected American films. May focus on periods, movements, and issues such as surrealism in film, the American city in film, utopias, and dystopias in film. (5 units)

122. Studies in Film, Gender, and Sexuality

Interdisciplinary study of film with a focus of gender and sexuality. Topics may include, but are not limited to, feminist and queer film theory, women filmmakers, lesbian/gay cinema, and constructions of gender in popular film. May be taken more than once when topics differ. *Also listed as WGST 134.* (5 units)

123. Studies in the History of Literary Theory

Exploration of some major ideas and debates in literary theory and criticism, as these have developed over time, e.g., whether and how literature is good for individuals and/or society, how writers create their works and readers read them. (5 units)

124. Studies in Contemporary Literary and Cultural Theory

Exploration of one or more major movements in recent literary and cultural theory, such as Marxism, feminism, deconstruction, reader response, New Historicism, cultural studies, postcolonial theory, narrative theory. (5 units)

125. Feminist Literary Theory and Criticism

Study of 20th-century feminist literary theory and criticism. Examination of influences of gender on reading and writing literature. *Also listed as WGST 163.* (5 units)

126. Creative Writing and Social Justice

This course will explore the intersections of creative writing, social justice, and vocation with special attention to issues of poverty and homelessness. Students will read and write creative prose and poetry, have a brief community placement, and learn from several guest speakers. (5 units)

127. Writing Genre Fiction

Introduction to and practice in planning and drafting works of genre fiction (historical, science fiction, magical realism, fantasy) for an adult or young adult audience. (5 units) NCX

128. Studies in the Literature of the Middle Eastern and Islamic World

Exploration of selected texts of the Middle Eastern and Islamic world. Authors may include Elias Khoury, Laila Lalami, Liana Badr, Leila Abouleta, Orhan Pamuk, Amos Oz, and others. (5 units)

129. California Literature

Literature written by Californians and/or about California. Authors may include Steinbeck, Jeffers, Ginsberg, Didion, and Snyder. (5 units)

130. Studies in African-American Literature

Study of selected works in African-American literature. May be taken more than once when topics differ. (5 units)

131. Studies in Early American Literature

Study of selected works from the beginnings of American literary history up to the 19th century. Writers, genres, and topics vary each term. Works may include journals, poetry, slave narratives, sermons, letters, legends, autobiographies, essays, and early fiction. May focus on periods and issues such as the literature of cultural contact and European settlement, Puritanism, the Enlightenment, and the American Revolution. May be taken more than once when topics differ. (5 units)

132. Studies in 19th-Century American Literature

Study of selected American works from the 19th century. Writers, genres, and topics vary each term. May focus on periods, movements, and issues such as American romanticism, transcendentalism, realism and naturalism,

regionalism, magazine writing, the rise of women writers, and literature of social protest (abolition and suffrage). May include fiction (short stories, novels, and sketches), plays, poetry, essays, slave narratives, and autobiographies. May be taken more than once when topics differ. (5 units)

133. Studies in Modern American Literature

Study of selected American works from the early part of the 20th century. Writers and genres vary each term. May focus on periods, movements, and issues such as American expatriate literature, novels of social conscience, the modern poetic sequence, the Harlem Renaissance, modernism, magazine fiction, or regional poetry. Works may include fiction (short stories, novels, sketches), plays, poetry, essays, and autobiographies. May be taken more than once when topics differ. (5 units)

134. Studies in Contemporary American Literature

Study of selected works by contemporary American writers. Writers, genres, and topics vary each term. May focus on periods, movements, and themes such as multiethnic literatures, contemporary women novelists, postmodernism, the Beat generation, literature and politics, literature of the 1960s, or experiments in poetic and narrative form. Genres may include poetry, novels, short stories, essays, plays, and/or autobiographies. May be taken more than once when topics differ. (5 units)

135. Studies in American Fiction

Study of selected American fiction. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. (5 units)

137. Studies in American Poetry

Study of selected American poetry. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. (5 units)

138. Internet Culture and Information Society

Introduction to major issues raised by Internet-mediated community and sociability, including the proliferation of subcultures and countercultures. (5 units)

139. Special Topics in American Literature

Advanced study of an issue, theme, or genre in American literature that crosses historical periods. Topics change each term. May be taken more than once when topics differ. (5 units) NCX

140. Studies in Chicano Literature

Studies in Chicano literary traditions. May be taken more than once when topics differ. (5 units)

141. Studies in Medieval Literature

Medieval literature in its political, religious, historical, social, and cultural contexts. May be taken more than once when topics differ. (5 units)

142. Chaucer

A study of selected major works by Chaucer. (5 units)

143. Studies in Renaissance Literature

Renaissance literature in its political, religious, historical, social, and cultural contexts. May be taken more than once when topics differ. (5 units)

145. Milton

A study of Milton's major poetry and prose in the light of recent criticism. (5 units)

146. 17th- and 18th-Century Literature

The literature of England and Ireland from 1660 to 1798, excluding the novel. Authors may include Congreve, Dryden, Swift, Pope, Finch, Montagu, Johnson, Boswell, and Wollstonecraft. (5 units)

147. Romantic Movement

The literature of England from 1798 to 1832. Authors may include Blake, Burns, Wordsworth, Coleridge, Byron, the Shelleys, and Keats. (5 units)

148. Victorian Literature

The literature of England from 1833 to 1902. Authors may include Carlyle, the Brontés, Tennyson, the Brownings, Newman, Ruskin, Arnold, and Hopkins. (5 units)

149. Modern British Literature

Twentieth-century poetry and prose. Authors may include Owen, Hardy, Conrad, Yeats, Joyce, Lawrence, Eliot, and Woolf. (5 units)

150. Studies in Contemporary Literature

British, American, and world poetry, fiction, and drama since World War II. Authors may include Cheever, Leavitt, Amis, Duong Thu Huong, Carey, and Kincaid. May be taken more than once when topics differ. (5 units)

151. Studies in British Fiction

The study of selected British fiction. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. (5 units)

152. Studies in Women, Literature, and Theory

Study of literatures by and about women in explicitly theoretical contexts. May be repeated for credit when topics differ. *Also listed as WGST 166.* (5 units)

153. Studies in Global Gay and Lesbian Cultures

Interdisciplinary study of gay and lesbian cultures and critical theory. May be taken more than once when topics differ. *Also listed as WGST 122.* (5 units)

154. Environmental Literature

Study of the natural world and its meanings and representations in language and culture. (5 units)

155. Studies in Asian-American Literature

Study of selected works in Asian-American literature. May be taken more than once when topics differ. (5 units)

156. Studies in Gay and Lesbian Cultural Studies

Interdisciplinary study of gay and lesbian cultures and critical theory. May be taken more than once when topics differ. *Also listed as WGST 136.* (5 units)

157. Studies in Postcolonial and Commonwealth Literature and Theory

Literature written with a postcolonial emphasis since 1945 in former European colonies (e.g., India, Nigeria, Jamaica, Australia, Morocco, Egypt, Brazil, Colombia). Some writings from postcolonial theorists, such as Frantz Fanon and Edward Said. May be taken more than once when topics differ. (5 units)

158. Studies in Native American Literature

Study of selected works in Native American literature. Course may focus on particular authors (Leslie Marmon Silko, Louise Erdrich, James Welch), particular tribal or regional literatures, genres (autobiography, poetry, novel), or topics (trickster discourse, landscape, historical representation). (5 units)

159. Studies in Indian Subcontinental and Diasporic Literature

Study of selected readings in the contemporary literature of South Asia: literature in English and in translation. Course may focus on particular authors (Tagore, Roy, Devi, Ghosh), particular regions or genres (Bengal, Kashmir; diasporic memoirs), or topics (religion; Bollywood). May be taken more than once when topics differ. (5 units)

160. Children's Literature

Study of the theory and practice of children's literature with special attention to the history of children's literature, the debate over the kinds of texts best suited for teaching reading, and multiculturalism. (5 units)

161. The Bible as Literature

Literary genres of the Bible (myth, history, wisdom, prophecy, gospel) studied in translations from the Hebrew and Greek against the background of Mesopotamian, Babylonian, Egyptian, Hellenistic, and Roman cultures. (5 units)

162. Studies in Comparative Literature

Comparative study of selected works, in translation if not written in English, from more than one linguistic and/or national category, organized by theme, genre, or time period. May be taken more than once when topics differ. (5 units)

164. Studies in Caribbean Literature

Study of selected readings in the contemporary literature of the Caribbean, including Anglophone, and/or Hispanophone and Francophone literature in translation, or a combination of the three. Course may focus on particular authors (Lamming, Naipaul, Cesaire, Ponte), particular regions or genres (Trinidad and Jamaica, Cuba; experimental fiction, family chronicles), or topics (U.S. intervention, relations with England). May be taken more than once when topics differ. *Also listed as WGST 129.* (5 units)

165. Studies in African Literature

Study of selected readings in the contemporary literature of Africa: literature in English and in translation. Course may focus on particular authors (Ngugi, Achebe, Coetzee, Salih), particular regions or genres (West Africa, children as protagonists), or topics (women in society, hunger). May be taken more than once when topics differ. (5 units)

166. Pan-African Literature

Readings in the literature of the black diaspora. Writers from Africa, the Caribbean, and the United States. (5 units)

167. Modern Fiction

Selected works of continental, English, and American fiction that are peculiarly modern in sensibility or style. (5 units)

168. Studies in Women and Literature

Studies in literature by and about women. Authors, genres, historical periods, and themes change from year to year. May be repeated for credit by permission of department chair. *Also listed as WGST 167.* (5 units)

169. Non-English Literature in Translation

Non-English literature in translation. Areas and topics vary from year to year. (5 units)

170. Writing for Children and Young Adults

Workshop in writing and illustrating children's and young adults' books. (5 units) NCX

171. Advanced Fiction Writing

Writing fiction, with emphasis on the short story. May be repeated for credit. *Prerequisite: ENGL 71.* (5 units) NCX

172. Advanced Poetry Writing

Workshop in the writing of poetry. May be repeated for credit. *Prerequisite: ENGL 72.* (5 units) NCX

173. Screenwriting

An introduction to the fundamentals and format of screenplay writing. Critical analysis of characterization and narrative structure in contemporary movies, as well as workshops in the writing of film treatments, outlines, and scripts. May be repeated for credit. *Also listed as THTR 173. Prerequisite: ENGL 71 or permission of the instructor.* (5 units) NCX

174. Nonfiction Writing

Study of and extensive practice in reading and writing nonfiction. Stress on analysis and rhetorical reading and writing skills, as well as the process of revising students' own writing. Readings and writing will be organized around a topic, such as travel writing, nature writing, or science and the environment. May be repeated for credit. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

175. Creative Nonfiction

Development of skills in the elements of creative nonfiction, such as narration, character development, persona, and voice. Focus is on one or more modes of creative nonfiction, such as landscape writing, popular culture, literary journalism, profile, and memoir. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

176. Intensive Writing

Extension of instruction in explanatory and exploratory academic writing principles introduced in prior courses. Activities include readings and intensive writing in a variety of topics across the curriculum with emphasis on revision of student writing through drafts, peer, and instructor review. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

177. Argumentation

Argumentative and persuasive writing, ideal for students planning careers in business, politics, or law. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

178. Technical Writing

Instruction in the writing of formal reports, procedures, proposals, and journalistic pieces, such as brochures and feature articles. Attention given to techniques of information gathering (including conducting interviews and surveys), document design, and editing. Open to students of all majors. Ideal for those planning careers in health care, the sciences, or industry. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

179. Practical Business Rhetoric

Instruction in various strategies for crafting an appropriate and attractive business personality through résumés and cover letters, job interviews, informal public speaking, email, and other correspondence. *Prerequisites: ENGL 1A and 2A. Priority given to juniors and seniors. Sophomores by permission of instructor.* (5 units) NCX

180. Writing for Teachers

Prepares prospective teachers at all school levels for their responsibilities in the instruction of writing. One method employed will be close, intensive work with each student's own expository prose. A second method will be to investigate controversies in English education and composition studies. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

181. Applied Engineering Communications I

The first of a required three-course sequence in advanced writing for senior engineering majors. This course is taught only in fall. *Prerequisites: ENGL 1A and 2A. Enrollment by permission of instructor.* (2 units)

182A. Applied Engineering Communications IIA

The second of a required three-course sequence in advanced writing for senior engineering majors. This course is taught only in winter. *Prerequisite: ENGL 181. Enrollment by permission of instructor.* (1 unit)

182B. Applied Engineering Communications IIB

The third of a required three-course sequence in advanced writing for senior engineering majors. This course is taught only in spring. *Fulfills the Advanced Writing requirement for the senior engineering major. Prerequisites: ENGL 181. Enrollment by permission of instructor.* (1 unit)

183. Writing for Business

A course in applied business rhetoric in which, individually and collaboratively, students will produce the kind of writing they can expect to encounter in the workplace, from résumés and email, to quantitative and qualitative analyses, collaterals and executive summaries, formal reports and evaluations, etc., culminating in the development and delivery of an actual community service project designed to further Santa Clara's mission. *Prerequisites: ENGL 1A and 2A. Priority given to juniors and seniors. Sophomores by permission of instructor.* (5 units) NCX

184. Writing for Publication

Study of, and extensive practice in, reading and writing professional nonfiction. This course emphasizes the changing forms of professional writing—from public relations and advertising to blogs, websites, print, and television—in the age of the Internet. Students will create their own blog, learn basic reporting skills, develop their narrative abilities, edit copy, and learn how to construct a career as a full- or part-time professional writer. May be repeated for credit. *Prerequisites: ENGL 1A and 2A.* (5 units)

185. Grants, Proposals, and Reports

Study of and practice in the professional writing of grants, proposals, and reports. Analysis of subject matter, length, purpose, information sources, number and kind of readers, and the circumstances that lead to preparation. *Prerequisites: ENGL 1A and 2A.* (5 units) NCX

186. Gender in Antiquity

Investigation into the representation and the reality of women's lives in ancient Greece or Rome. Focus varies from year to year. May be repeated for credit when topics differ. *Also listed as CLAS 185.* (5 units)

187. Classical Mythology in the Western Tradition

Also listed as CLAS 184. For course description see CLAS 184. (5 units)

189. Studies in Literature and Religion

Exploration and analysis of central connections between religious and ethical questions, concerns, topics, and movements and their literary expressions in different social, cultural, individual, historical, geographical, and/or political contexts. May be repeated for credit when topics differ. (5 units)

190. Senior Seminar

Special topics in English, American, or comparative literature for senior English majors. *Enrollment by permission of instructor.* (5 units) NCX

191. Practicum

Reading, viewing and critiquing poetry, fiction, non-fiction, and art for publication in the *Santa Clara Review*, facilitated by student editors and faculty advisor. Students are graded P/NP only. May be repeated for credit. Cross listed with ENGL 91.

191A. Practicum for Writing Tutors

Instruction in how to foster an effective relationship between tutors and student clients. Course focus includes composition and teaching-learning theory, best practices in tutoring, the tutor-student relationship, how to engage students in the learning process, how cultural and linguistic backgrounds affect writing and tutoring processes, and how students' support needs vary by discipline and writing tasks. (5 units)

191B. Practicum for Tutor Certification

Students who have completed at least 30 hours in the writing center may apply for certification. In addition to positive performance evaluations, students seeking certification will complete a special project. Students are graded P/NP only. (3 units)

192. American Theatre from the Black Perspective

Also listed as THTR 161. For course description see THTR 161. (5 units)

193. Advanced Playwriting

Also listed as THTR 171. For course description see THTR 171. May be repeated for credit when topics differ. (5 units) NCX

193W. Playwriting

Also listed as THTR 170. For course description see THTR 170. May be repeated for credit when topics differ. (5 units) NCX

194. Peer Educator in English

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

195. Dramaturgy

Also listed as THTR 185. For course description see THTR 185. (5 units)

196. Writing in the Community

In this class, fiction writers and poets facilitate creative writing workshops at placements and agencies served by the Arrupe Center. *Permission of instructor required.* (5 units) NCX

197. Special Topics

Major authors, genres, literary or theoretical movements, or themes. May be repeated for credit when topics differ. (5 units)

198. Writing Internship

Work-study program for students of superior writing ability who gain course credit by supervised writing on newspapers, magazines, or for government or private agencies. Enrollment is by permission or invitation of the instructor and department chair. May be repeated once for credit. Students are graded P/NP only. (1–5 units) NCX

199. Directed Reading/ Directed Research

In special circumstances and with permission of the department chair, a student may request a course in directed reading or writing from an instructor. May not be taken in a subject listed in this *Bulletin*. (5 units) NCX

DEPARTMENT OF ENVIRONMENTAL STUDIES AND SCIENCES

Professors: Lisa Kealhofer, Michelle Marvier
Associate Professors: Leslie Gray, Iris Stewart-Frey (*Department Chair and Clare Boothe Luce Professor*)
Assistant Professors: Christopher Bacon, Virginia Matzek, Hari Mix
Senior Lecturer: John Farnsworth

The Department of Environmental Studies and Sciences offers interdisciplinary programs of study leading to a bachelor of science in environmental science or environmental studies. A minor in environmental studies is also available. These programs provide students with the intellectual foundation they will need in addressing crucial environmental challenges of the 21st century such as human population growth, urban sprawl, deforestation, global climate change, waste disposal, air and water pollution, loss of biodiversity, and the need for renewable energy.

Environmental studies and sciences programs are enriched by colloquia, including biweekly seminars, featuring presentations on environmental topics by journalists, politicians, business people, scientists, and other scholars. Majors in environmental science and environmental studies are expected to apply their knowledge outside the classroom by completing an approved internship or research experience, culminating in ENVS 198, Environmental Proseminar.

Environmental studies and sciences students are encouraged to study abroad. Courses such as Natural History of Baja include one week of immersion travel during University breaks. In addition, many summer and academic year courses taken through approved study abroad programs will count toward the requirements of the environmental studies and sciences majors and minors.

Each student works with a faculty advisor, who helps integrate the classroom curriculum with the student's plans for future study and/or work in environmental fields.

REQUIREMENTS FOR THE MAJORS

Major in Environmental Science

In addition to fulfilling Undergraduate Core Curriculum and College of Arts and Sciences requirements for the bachelor of science degree, students majoring in environmental science must complete the following departmental requirements:

- ENVS 21, 22, 23, 101, 122, 198
- BIOL 160/ENVS 110
- ENVS 115 or 116
- CHEM 11, 12, 13
- MATH 11
- ECON 1
- ANTH 50/ENVS 50/POLI 50
- ENVS 79 or PHIL 9
- Select one of the following course series: BIOL 21, 22, 23 or CHEM 31, 32 or PHYS 11, 12, 13 (PHYS 31, 32, 33 can be substituted)

- One course from ANTH 140, ANTH 154, CENG 124/ENVS 124, COMM 120A, ECON 111, ENVS 120, ENVS 128, ENVS 146, ENVS 147, ENVS 149/POLI 146, ENVS 150, ENVS 155, ENVS 158/PSYC 158, ETHN 156, ENVS 167
- Attend 10 approved Environmental Studies and Sciences environmental colloquia

Environmental science majors shall select a concentration in Applied Ecology or in Water, Energy, and Technology. Alternatively, students may work with their advisors to design an individualized plan of study.

Applied Ecology concentration

- BIOL 21, 22, 23
- Four courses, at least one of which must include a laboratory component, from ANTH 145, ENVS 132, BIOL 151/ENVS 151, BIOL 153/ENVS 153, BIOL 156/ENVS 156, BIOL 157/ENVS 141, BIOL 158, ENVS 144, ENVS 160

Water, Energy, and Technology concentration

- CHEM 31, 32 or PHYS 11, 12, 13 or PHYS 31, 32, 33
- Four courses, at least one of which must include a laboratory component, from BIOL 135/ENVS 135, CENG 119, CENG 139, CENG 140, CENG 143, CENG 160, CENG 161, CENG 163, ENVS 80, ENVS 145, ENVS 148, ENVS 160, ENVS 165, ENVS 166, ENVS 185

Major in Environmental Studies

In addition to fulfilling Undergraduate Core Curriculum and College of Arts and Sciences requirements for the bachelor of science degree, students majoring in environmental studies must complete the following departmental requirements:

- ENVS 21, 22, 23, 101, 122, 198
- ECON 1
- ANTH 50/ENVS 50/POLI 50
- ENVS 79 or PHIL 9
- One course from ANTH 112, BIOL 160/ENVS 110, COMM 110, ECON 61, HIST 100, OMIS 40, POLI 100, POLI 101, PSYC 40, SOCI 120
- ENVS 115 or 116
- One course from BIOL 151/ENVS 151, BIOL 153/ENVS 153, ENGR 60, ENVS 80, ENVS 145, ENVS 148, ENVS 160, ENVS 165, ENVS 166, ENVS 185
- Attend 10 approved Environmental Studies and Sciences environmental colloquia

Environmental studies majors shall select one of the following concentrations: Green Business; Environmental Policy, Law, and Politics; Sustainable Development; or Environmental Humanities. Alternatively, students may work with their advisors to design an individualized plan of study.

Green Business concentration

- Three courses from ECON 101, ECON 111, ECON 120, MGMT 172, MKTG 189, OMIS 108E, ENVS 167
- One course from any other environmental studies concentration

Environmental Policy, Law, and Politics concentration

- Three courses from CENG 124/ENVS 124, COMM 120A, ENVS 120, ENVS 128, ENVS 150, ENVS 155, ENVS 158/PSYC 158, ETHN 156, PHSC 142, POLI 123, POLI 167
- One course from any other environmental studies concentration

Sustainable Development concentration

- Three courses from ANTH 140, ANTH 154, ENVS 132, BIOL 157/ENVS 141, ENVS 128, ENVS 144, ENVS 146, ENVS 147, ENVS 149/POLI 146, ENVS 150, ENVS 155, ENVS 167
- One course from any other environmental studies concentration

Environmental Humanities concentration

- Three courses from ANTH 145, COMM 120A, ENGL 154/ENVS 154, ENVS 131, ENVS 142, ENVS 158/PSYC 158, HIST 85, TESP 152
- One course from any other environmental studies concentration

REQUIREMENTS FOR THE MINOR

Minor in Environmental Studies

Students must fulfill the following requirements for a minor in environmental studies:

- ENVS 21, 22, 23
- One course from ANTH 112, ANTH 145, BIOL 160/ENVS 110, CENG 160, COMM 110, ECON 61, ENVS 115, ENVS 116, HIST 100, OMIS 40, POLI 100, POLI 101, PSYC 40, SOCI 120
- One course from CENG 124/ENVS 124, COMM 120A, ENVS 120, ENVS 122/POLI 157, ENVS 128, ENVS 147, ETHN 156, POLI 123
- One course from ENVS 79, PHIL 9, RSOC 140, TESP 84, TESP 152, TESP 173, TESP 192
- Three additional courses from the lists above or ANTH 50/ENVS 50/POLI 50, ANTH 140, ANTH 154, ENVS 132, BIOL 151/ENVS 151, BIOL 153/ENVS 153, BIOL 156/ENVS 156, BIOL 157/ENVS 141, CENG 119, CENG 139, CENG 140, CENG 143, CENG 160, CENG 161, CENG 163, ECON 101, ECON 111, ENGL 154/ENVS 154, ENGR 60, ENVS 20, ENVS 80, ENVS 95, ENVS 131, ENVS 142, ENVS 144, ENVS 145, ENVS 146, ENVS 148, ENVS 149/POLI 146, ENVS 155, ENVS 158/PSYC 158, ENVS 160, ENVS 165, ENVS 166, ENVS 167, ENVS 185, ENVS 195, ENVS 196, ENVS 197, ENVS 199, MGMT 172, MKTG 189, OMIS 108E, PHSC 142
- Attend six approved Environmental Studies and Sciences environmental colloquia or complete ENVS 140

LOWER-DIVISION COURSES: ENVIRONMENTAL STUDIES AND SCIENCES

1A. and 2A. Critical Thinking & Writing I and II

A two-course, themed sequence featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. The second course will feature more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. Topics may include the rhetoric surrounding current environmental issues, and environmental criticism with a variety of media. *Successful completion of CTW I (ENVS 1A) is a prerequisite for CTW II (ENVS 2A).* (4 units each quarter)

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Themes may include nature, imagination, and environment in myth, art, literature, music, drama, story, philosophy, and sacred text. *Successful completion of C&I I (ENVS 11A) is a prerequisite for C&I II (ENVS 12A).* (4 units each quarter)

20. The Water Wars of California L&L

In California, the average person uses about 230 gallons of water a day while most of the population is concentrated in areas that receive less than 20 inches of rainfall per year. This course will use the history of water resource use and abuse in the state of California as a backdrop for investigating the interplay of hydrology, climate, and human population growth. Students will examine factors that affect the supply, distribution, demand, and quality of fresh water in the state of California. The important roles of climatic processes, variability, and global climate change will be highlighted, and population pressures on water resources will be analyzed. Concepts will be reinforced by field projects and through comparative case studies from California and beyond. Laboratory 15 hours. (4 units)

21. Introduction to Applied Ecology L&L

This course presents an introduction to environmental issues, seen through the lens of the biological sciences. Basic scientific concepts at different scales of biological organization, from genes to ecosystems, are illustrated by their application to contemporary environmental questions. In lecture, students are expected to think critically, read widely, and participate in group discussions. In laboratory and field exercises, the emphasis is on applying the scientific method and analyzing data. Laboratory 15 hours. Saturday field trip required. (4 units)

22. Introduction to Environmental Studies

This course presents an overview of environmental studies as an interdisciplinary academic field focused on society-nature relationships. It draws from multiple social scientific disciplines, including geography, political economy, and sociology to pose environmental questions, understand the root causes of problems, and analyze potential solutions at local, national, and global scales. After considering several environmental narratives and reviewing the key events, influential scholarly works, social movements, politics, and policy changes that contributed to the rise of different environmentalisms, this course analyzes the social dimensions of several case studies. These cases include climate change, food security, biodiversity loss, industrial pollution, and green innovation. In the third section, learners consider the personal and collective dimensions of social

change, environmental citizenship, and governance interrogating the ethics and leadership models of organizations and individuals active in solving environmental problems. (4 units)

23. Introduction to Earth Systems L&L

This course will investigate the workings and complexities of the Earth system, including the interactions, synergies, and feedbacks that link the geologic, oceanic, hydrologic, and climate system. Building on basic physical and chemical principles, students will study how continents, soils, oceans, freshwater reservoirs, and the atmosphere formed, which processes are taking place to change them, and how they are affected by human action. Understanding of the concepts will be deepened by laboratory activities and a field trip. Laboratory 15 hours. (4 units)

50. World Geography

Provides an understanding of world geography through an appreciation of contemporary global problems in different world regions. Broad topics that will be covered include globalization, demographic trends, economic development and underdevelopment, human-environment interactions, changing cultures, and geopolitics. These topics will illustrate the distribution of political, cultural, socioeconomic, and physical processes and features around the world and will be covered at local, regional, and global scales. *Also listed as ANTH 50 and POLI 50.* (4 units)

79. Environmental Thought

Using an ecocritical approach, this course examines primary and secondary sources related to the evolution of environmental thought in modern times. The work of seminal thinkers from within the conservation movement, environmental philosophy, and environmental sciences will be explored, as well as the social and economic influences in post-World War II America that created the modern environmental movement. (4 units) NCX

80. Energy and the Environment

From oil spills to coal mine accidents, from foreign policy impacts to climate change, energy has been a top news story. This course explores the basics of traditional fossil fuel energy production and alternative energy sources including natural gas, nuclear, biomass, wind, solar, hydropower, and fuel cells. Students will explore the energy demands of the United States relative to other countries and seek to piece together the multifaceted puzzle of energy production, storage, and transmission, as well as conservation and efficiency. Students will gain an understanding of the vast array of societal and environmental impacts of our energy demands, while defining opportunities and challenges for the future. (4 units)

95. Sustainable Living Undergraduate Research Project (SLURP)

This course is designed to promote a culture of sustainability within the residential learning communities of the modern university. Students engage in intensive research over the course of the academic year and will compile and present their results during the spring quarter. Enrollment is limited to residents of the SLURP floor in the CyPhi Residential Learning Community. (2 units in each of two academic quarters) NCX

UPPER-DIVISION COURSES: ENVIRONMENTAL STUDIES AND SCIENCES

101. Capstone Seminar

A guided group and individual research course that each year is aimed at a different environmental topic of global significance. Past topics have included the regulation of biotechnology, using ecosystem services to create financial incentives for conservation, the social equity and biological effectiveness of private land conservation, and the national choices facing China with respect to agricultural policy. The course begins with lectures so that students gain a foundational background for the quarter's research topic. Students write individual and group papers, give oral presentations, and develop project management skills. Some students pursue their research after the course, even to the point of publication. *Prerequisites: Senior class standing; ENVS 21, 22, and 23; and ENVS 110, 115, or 116.* (5 units) NCX

110. Statistics for Environmental Science L&L

A course in applied statistics for environmental scientists. Students gain training in experimental design, quantitative analysis, and hypothesis testing. Theory and concepts are covered in lectures and readings. Laboratory sessions provide practical experience using statistical software. Examples used in lectures and lab assignments are derived from medical research, public health, and environmental risk assessment. Laboratory 30 hours. *Also listed as BIOL 160. Prerequisite: BIOL 23 or ENVS 21.* (5 units)

115. GIS in Environmental Science L&L

Are negative environmental impacts disproportionally affecting disadvantaged communities? Where is the best place for habitat conservation? These and other "spatial" questions can be investigated with Geographic Information Systems (GIS), a type of analysis and software, which we will learn in this course. The class and laboratory will focus on methods of generating, querying, analyzing, and displaying GIS data utilizing industry standard software. Theories and concepts will be covered during lecture. Students will address spatial questions during lab. Possible topics include urban planning, environmental justice, pollution, natural resource protection, and habitat conservation issues. Each student will propose and carry out a GIS project of his or her own choosing. Laboratory 30 hours. *Prerequisite: ENVS 21 or 23 recommended.* (5 units)

116. Introduction to GIS

Geographic Information Systems (GIS) can be used to overlay different kinds of spatial data to create maps and address a wide variety of "spatial" questions. The class will focus on methods of generating, querying, analyzing, and displaying GIS data utilizing industry standard software. *Prerequisite: ENVS 21 or 23 recommended.* (5 units)

117. Intermediate GIS

This course will use a project-based approach to understanding and applying intermediate GIS tools with an emphasis on environmental problem solving. Class material will include practice for the ESRI ArcGIS desktop associate exam. *Prerequisite: ENVS 116.* (5 units)

120. Introduction to Environmental Law and Regulation in the United States

Introduction to the U.S. legal system's approach to environmental protection. Topics include the roles of legislatures and environmental agencies at the federal, state, and local levels; the independent role of the judiciary in establishing environmental law; and specific statutes, such as the Clean Air Act. Students evaluate questions of federalism, uses of economic incentives, and relationships between environmental protection and economic growth. *Prerequisite: ENVS 22 recommended.* (5 units)

122. Environmental Politics and Policy

This course examines environmental politics, policy, and governance in the last half century. Part one reviews major environmental legislation in the United States, including the Endangered Species Act, Clean Water Act, Clean Air Act, and policy responses to global warming. In part two, learners step back to interrogate the power dynamics, social movements, legal battles, and struggles over meaning and representation that accompany significant social change. The final section examines the rise of global environmental governance highlighting the role of nonprofit organizations, civil societies, and corporate firms as voluntary environmental regulation moves from the margins to the mainstream. A concluding discussion identifies avenues for civic engagement, accountability, and environmental citizenship. Learners will gain insight into the policymaking processes by participating in simulation games, reading and research assignments, developing tools to assess policy outcomes, and finding strategies to identify political opportunities. *Also listed as POLI 157. Prerequisite: ENVS 22 or ENVS 79 or POLI 1.* (5 units)

124. Water Law and Policy

Introduction to the legal and regulatory concepts related to water. Examines rights, policies, and laws, including issues related to water supply and access (water transfers/water markets, riparian and appropriative doctrines), flood control, water pollution and quality (the Clean Water Act, EPA standards, in stream flows for fish), and on-site storm water management/flood control. A focus on California water law and policy is complemented with some national and international case studies. *Also listed as CENG 124. Prerequisite: ENVS 22 recommended.* (5 units)

128. Urban and Environmental Planning

An introduction to environmental planning in the urban environment. Topics will include land use and zoning, greenbuilding, water, wastewater, stormwater, open space, and transportation/walkability. The course will also introduce the regulatory tools and legislation, including NEPA and CEQA, that motivate environmental planning. *Prerequisite: ENVS 22 and ENVS 23 or permission of instructor.* (5 units)

131. Environmental Education

Environmental education plays a fundamental role in our attempts to make human systems more sustainable. An introduction to the study and practice of environmental education. Surveys philosophies, theories, and methods of environmental education with a special emphasis on techniques for engaging K–12 students in outdoor settings to maximize learning of environmental concepts and to improve the students' understanding of their personal connections to nature. Introduces creative ways that we—as current or future teachers, parents, or mentors—can use active study of and interactions with the outdoor environment to engage young people in the study of environmental systems and basic biological, chemical, and physical sciences. A portion of the course will be taught in field-based settings. Students will participate in service-learning projects that will give them practical experience planning and leading environmental education lessons. Especially valuable for future teachers. *Prerequisite: ENVS 21, 22, 23, or BIOL 23.* (5 units) NCX

132. Agroecology L&L

The goal of agroecology is to reduce the negative impact of farming while meeting the food needs of the world. Examines in a holistic framework the ecological principles and processes that govern agroecosystem productivity and stability. A wide variety of agricultural management practices and designs are assessed and discussed in terms of their capacity to sustain long-term production. Students will also learn research methods that explore the resilience and sustainability of agroecosystems. One required weekend field trip. Laboratory 30 hours. *Prerequisite: BIOL 23, or both ENVS 21 and 23.* (5 units)

140. Sustainability Outreach

Students in this course will develop a deeper understanding of the concept of sustainability, examining issues using sustainability as a lens. Students will learn how social, economic, and environmental dimensions of sustainability relate to and support each other in theory and practice. Students will participate in an outreach program designed to facilitate sustainable development on campus and/or in the community. (1 unit) NCX

141. Environmental Biology in the Tropics

This summer course examines tropical biology and ecology and their relationship to issues of sustainable development. The course includes 1.5 weeks of instruction at SCU and 3.5 weeks of field study in Costa Rica. Particular emphasis on tropical ecology, community ecology, reforestation and restoration ecology, sustainable agriculture and fair trade, and ecotourism. Taught in conjunction with ANTH 197. *Enrollment by application via International Programs. Prerequisite: ANTH 1 or BIOL 23 or ENVS 21.* (5 units) NCX

142. Writing Natural History

Engages students in ecocritical reading and writing about the natural history of Baja California Sur. The on-campus portion of the course prepares students to engage in first-hand explorations of the environment in and around the Sea of Cortez. During the on-site portion of the course, students will compile extensive field notes in preparation for the composition of their own natural histories. *Must be concurrently enrolled in ENVS 144. Prerequisites: CTW 1 and 2. Enrollment by application only. Travel fees required.* (5 units) NCX

144. Natural History of Baja

Examines the natural history, biology, and ecology of desert and coastal ecosystems in Baja California Sur. Meets once a week in the winter quarter and over spring break in the Sierra La Laguna (Cape Region) and Isla Espiritu Santo (La Paz Bay), Baja California Sur, Mexico. Students will become familiar with desert, oak scrub, riparian, thorn forest, beach, mangrove, coral reef, and rocky intertidal habitats; develop field observation and species identification skills; and explore challenges of sustainable development of this fragile ecosystem. *Must be concurrently enrolled in ENVS 142. Prerequisite: BIOL 23 or ENVS 21. Enrollment by application only. Travel fees required.* (5 units)

145. Environmental Technology

A survey course covering a variety of environmentally conscious technologies. Addresses "bleeding edge" as well as more traditional technologies that enhance both human welfare and environmental quality in both the developed and developing countries. Students will concentrate on environmentally conscious technologies used in the general areas of air quality, biotic systems, climate, energy, land, population, transportation, waste, and water. The class culminates with the development of a life cycle analysis for a consumer product. *Prerequisite: ENVS 23 or by permission of instructor.* (5 units)

146. Agriculture, Environment, and Development: Latin America

Offers a cross-disciplinary examination of the prospects for "sustainable development" in rural areas of Latin America. Students will use diverse points of view to look at interactions between poverty, development, and environmental degradation. While there is no single, universally accepted definition of sustainable development, a central goal of this course is that each student will come away with the ability to understand the key elements that distinguish different discourses on this subject. *Prerequisite: ENVS 22 recommended.* (5 units)

147. International Environment and Development

Examines the intersection of environment and development in the developing world. Students will explore meanings and measures of development as well as international institutions that influence development and environmental policy. Conceptual frameworks for addressing human-environmental relationships, including globalization, famine and hunger, sustainable development, population-poverty interactions, and gender will be explored. Specific topics to be covered include deforestation, water use, conservation and development, oil extraction, and urbanization. *Prerequisite: ENVS 22 or by permission of instructor.* (5 units)

148. Solar Revolution

Solar energy is more than just photovoltaic (PV) arrays on a roof. Learn about different types of PV technologies as well as passive solar design, and concentrated solar thermal (making power at the level of a conventional power plant!). Find out the key technological, environmental, and economic issues, and what it would take to employ solar energy to greatly decrease our reliability on fossil fuels. Students will use the United States as well as numerous examples in developed and developing countries as case studies. *Prerequisite: ENVS 21, 22, 23, or 80.* (5 units)

149. African Environment and Development

Students will gain an in-depth understanding of Africa's diversity and dynamism, considering how people and environments have interacted through space and time. We will examine Africa's social, cultural, economic, political, and environmental systems to understand Africa's trajectory of development. *Also listed as POLI 146.* (5 units)

150. Political Ecology

Explores political ecology as a field of study and as a critical tool to analyze environmental issues. Focuses on going beyond simplified explanations about environmental problems, tracing environmental change to broader political, economic, and cultural issues. Topics explored will include land degradation, conservation through parks and reserves, land use conflicts, science and power, social movements, urban pollution, and public health. Course readings include case studies from across the globe to examine how political ecology research engages issues and how it offers critical insights needed to address environmental problems. Challenges students to critically examine their own interpretations and understandings of today's most important environmental issues. *Prerequisite: ENVS 22 or by permission of instructor.* (5 units)

151. Restoration Ecology L&L

The science and practice of restoring degraded ecosystems, with an emphasis on plant ecology. Through fieldwork on restoration experiments, conversations with managers, and examination of literature case studies, students will grapple with basic questions: How do we decide what to restore? How do we restore it? And how do we know if we're finished? Emphasis on reading and writing scientific papers, understanding data analysis, writing a restoration plan, and judging the success of restoration projects in meeting goals of biodiversity and ecosystem function. Laboratory and field work 30 hours,

including a weekend field trip. *Also listed as BIOL 151. Prerequisite: BIOL 23, or both ENVS 21 and 23.* (5 units)

153. Conservation Science

Conservation is a scientific enterprise and a social movement that seeks to protect nature, including Earth's animals, plants, and ecosystems. Conservation science applies principles from ecology, population genetics, economics, political science, and other natural and social sciences to manage and protect the natural world. Conservation is all too often seen as being at odds with human well-being and economic development. This course explores the scientific foundations of conservation while highlighting strategies to better connect conservation with the needs of a growing human population. We will examine whether conservation can protect nature, not *from* people, but *for* people. *Also listed as BIOL 153. Prerequisite: BIOL 23, or both ENVS 21 and 23.* (5 units)

155. Environmental and Food Justice

This course unites two vibrant fields for academic study and arenas for social, political, and ecological action. Environmental justice as a principle affirms the right of all people to healthy livable communities. Environmental injustice occurs when environmental benefits and burdens are unevenly distributed along the lines of identity, including race, class, and/or nationality. Food justice research addresses inequalities in food access and studies the patterns, causes, and solutions associated with increasing hunger and obesity among eaters and the accumulation of environmental costs in agricultural landscapes. After reviewing several seminal studies in environmental and food justice, this class delves into case studies in California and Central America. Learners will conduct a major research project, participate in team-based collaborations, and engage local communities as part of this course. *Prerequisite: ENVS 22 or ENVS 79.* (5 units)

156. General Ecology L&L

Quantitative study of the interrelationships of organisms with their biotic and abiotic environments. Emphasis on population dynamics, interspecific relationships, community structure, and ecosystem processes. Laboratory and field work 30 hours, including one weekend field trip. *Also listed as BIOL 156. Prerequisites: BIOL 23.* (5 units)

158. Conservation Psychology

Many environmental problems (e.g., global warming, pollution, biodiversity loss, and resource depletion) are caused by human behavior, and changing this behavior is necessary in order to solve them. Topics include psychological reasons (emotions, thoughts, values, motivations, social context) why people behave in environmentally sustainable or unsustainable ways, and how psychology can be used to develop policies and other interventions to help promote sustainable behavior. *Also listed as PSYC 158. Prerequisites: PSYC 1, 2, 40, and 43, or permission of the instructor.* (5 units)

160. Water Resources L&L

This course covers fundamental concepts in hydrology and water resources management, such as precipitation, runoff, and infiltration, flow in streams and aquifers, floods and droughts, water budgets, water delivery systems and stream restoration, water cycling, use, treatment, pollution, and conservation. Interactions between water and human societies, ecosystems, agriculture, natural resources, and climate are explored through domestic and international case studies. The concepts are reinforced through indoor and outdoor class and laboratory exercises and fieldtrips. Laboratory 30 hours. *Prerequisites: ENVS 21 or 23, or by permission of instructor.* (5 units)

165. Climate Science and Solutions

Students will gain an in-depth understanding of the physical processes involved in climate change, as well as its socioeconomic consequences. The course also explores the strengths and weaknesses of policies and other tools used to mitigate or adapt to climate change. *Prerequisite: ENVS 23 or by permission of instructor.* (5 units)

166. Climate Change: Past to Future

Human-caused changes to the climate system are now widely accepted and expected to have great effects on physical, ecological and human systems, from increasing weather extremes to sea level rise to the mass extinction of half of Earth's species. We will explore the mechanisms responsible for both remarkable climate stability and catastrophic change in three units: (1) foundational aspects of the climate system such as Earth's energy balance, greenhouse effect, carbon cycle, and circulation of the oceans and atmosphere, (2) origin and evolution of the climate system in Earth history, and (3) impacts and vulnerabilities associated with modern climate change. In labs, students will develop and apply quantitative, conceptual, and spatial skills by modeling Earth's radiative balance, producing and interpreting geochemical records of the carbon and water cycles, forecasting climate change with climate models, and evaluating climate stabilization strategies. *Prerequisites: ENVS 23 required, CHEM 13 and ENVS 116 recommended.* (5 units)

167. Innovation for Climate Justice

Confronting climate disruption threatens to roll back progress in economic and sustainable development, especially for less developed regions. This course introduces climate justice as an ethical framework for understanding the unequal distribution of climate-related harms on the poor. The geography of climate change impacts are explored and students will evaluate innovation and entrepreneurship as climate adaptation strategies, with a particular focus on sustainable solutions. (5 units)

185. Garbology

This class follows the path of our waste products as they are landfilled, burned, treated, recycled, reused, dumped on minority communities, or shipped abroad. Building on basic chemical and biological principles, we explore the ultimate fate of organic and inorganic waste. We look to the past and to other societies to better understand how we got to this throw-away society and what we can learn from past practices and other cultures. We explore sustainable solutions including new efforts to reduce our waste such as "extended producer responsibility," design-for-disassembly, green chemistry, and zero waste. Students will also learn how to utilize the "life cycle analysis" approach as a basis for those daily decisions such as paper versus plastic. *Prerequisite: ENVS 23.* (5 units)

195. Sustainable Living Undergraduate Research Project (SLURP)

This research-based course is designed to promote a culture of sustainability within the residential communities of Santa Clara University. Students will engage in intensive research over the course of winter and spring quarters and will compile and present their results during the spring quarter. (2 units in each of two academic quarters) NCX

196. Special Topics in Environmental Studies

Course content and topics vary depending on the professor. (Variable units) NCX

197. Special Topics in Environmental Science

Course content and topics vary depending on the professor. (Variable units) NCX

198. Environmental Proseminar

A seminar course for graduating seniors, intended to permit reflection on an internship or research experience and foster the further development of professional skills. Prior to enrolling, students must complete 100 hours of work in one of the following two options: (1) an approved off-campus environmental internship (see your academic adviser for approval before initiating the internship), or (2) approved environmental research with SCU faculty (ENVS 199A or 199B) or as part of a study abroad program. Students pursuing option 1 enroll for 5 units; those pursuing option 2 enroll for 2 units. Students are graded P/NP only. *Prerequisites: Completion of 100 hours of approved internship or research and senior class standing.* (2 or 5 units) NCX

199. Directed Reading or Research

Students wishing to enroll in 199A or 199B should meet with the faculty supervisor no later than the fifth week of the term preceding the start of the project. *Prerequisite: A written description of the proposed project must be presented to the department chair for approval.* (1–5 units) NCX

199A. Directed Reading in Environmental Science or Environmental Studies

Detailed investigation based on directed readings on advanced environmental topics, under the close supervision of a faculty member. *Prerequisite: Permission of department chair and instructor before registration.* (1–5 units) NCX

199B. Directed Environmental Research

Supervised laboratory, field, or other research under the guidance of a faculty member. The goal should be a written report suitable for publication or a conference presentation. *Prerequisite: Permission of department chair and instructor before registration.* (1–5 units) NCX

ETHNIC STUDIES PROGRAM

Associate Professors: Ramón D. Chacón (*Program Director*), James S. Lai, Anna Sampaio
Assistant Professor: Anthony Q. Hazard Jr.

The Ethnic Studies Program provides a critical analysis of historical and contemporary formations of race, ethnicity, class, and gender. In the pursuit of social justice, it challenges dominant views of racial and ethnic groups that lead to inequalities. Ethnic studies focuses on the roles and experiences of African Americans, Asian/Pacific Islander Americans, Latinas/Latinos, and Native Americans within the framework of the United States and within transnational frameworks.

As an academic program, ethnic studies fosters interdisciplinary inquiry. The faculty comprise a community of expert scholars of critical race and ethnic studies, while serving as teachers, mentors, and role models for undergraduate students. Ethnic studies strives to make connections between University learning, racial and ethnic communities, and social change, and encourages a reflective engagement with society and a commitment to fashioning a more humane and just world. The Ethnic Studies Program serves as a resource for students, faculty, and staff across the University who are interested in examining race and ethnicity and its intersections with class, gender, citizenship, and nationality. The program offers both a companion major and a minor in ethnic studies: a student must declare a primary major in another discipline as well as companion major in ethnic studies. The companion major is designed to complement a student's primary major by broadening the field of study to include an academic focus on race/ethnicity. It enhances a student's employment opportunities in business, education, law, medicine, social work, and government. For those considering graduate school, the companion major and minor provide a foundation for graduate studies particularly for those who seek to become university professors and researchers with a specialization in a variety of issues and policies impacting U.S. racial and ethnic communities.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum and primary major requirements, students with a companion major in ethnic studies must complete the following requirements:

- ETHN 5
- Two courses from ETHN 10, 20, 30, 40
- One of the following breadth electives: ANTH 86, 90; DANC 62; ENGL 35, 36, 37, 38, 39, 69; ETHN 35, 36, 50, 51, 55, 60, 65, 70, 95, 96; MUSC 20; RSOC 88; THTR 14, 65
- Four upper-division courses from ETHN 112, 120, 121, 122, 123, 125, 126, 135, 141, 142, 149, 152, 153, 154, 155, 157, 160, 161, 162, 163, 178, 185, 197, 198, 199
- Three upper-division courses from ANTH 146; ARTH 141; COMM 107, 121, 164A, 168A; LBST 106; ENGL 130, 134, 139, 140, 155, 158, 166; HIST 153, 178, 180, 185; SPAN 133; DANC 162; MUSC 132, 134; POLI 153, 195; RSOC 139, 164, 184; SOCI 132, 150, 153, 175, 180; THTR 161, 189

- Capstone requirement including two courses:
  - A methods course in the primary major
  - ETHN 198 or 199, a community internship, creative project, or directed reading in which the student simultaneously works on a research paper or project under the direction of an ethnic studies core or affiliated faculty. Provides opportunities for students to apply their understanding of methods in their primary major to a project explicitly in ethnic studies.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in ethnic studies:

- ETHN 5
- Two courses from ETHN 10, 20, 30, 40
- Three upper-division courses in an area of specialization (i.e., African-American studies, Asian-American studies, Chicana/Chicano studies, or comparative ethnic studies)
- ETHN 198 or 199

Departmental Courses Applicable to the Minor

Note: For descriptions, see the listings of the relevant departments. Students should consult with the director of the Ethnic Studies Program to determine the applicability of courses taken at other institutions or in study abroad programs.

- ANTH 86, 90, 146
- ARTH 141
- COMM 107, 121
- DANC 62/162
- ENGL 35, 36, 37, 38, 39, 69, 130, 134, 139, 140, 155, 158, 166
- HIST 153, 178, 180, 185
- LBST 106
- MUSC 20, 132
- SPAN 133
- POLI 153, 195
- PSYC 189
- RSOC 88, 139, 164, 184
- SOCI 132, 153, 175, 150, 180
- THTR 14, 65, 161, 189

LOWER-DIVISION COURSES

5. Introduction to the Study of Race and Ethnicity in the United States

Focuses on immigration and intercultural race relations for the major cultures of color in the United States: African American, Asian American, Latina/o, and Native American. Discussions of each group historically in relationship to each other and the dominant culture. Through critical readings, class discussions, and films, students will have the opportunity to develop a solid intercultural foundation for understanding race and cultural diversity in United States. Course is a basis for classes offered by all faculty in the Ethnic Studies Program particularly the introductory-level courses. The course also serves as an introduction to the minor in the Ethnic Studies Program. (4 units)

10. Introduction to Native American Studies

Interdisciplinary exploration of the diverse cultural life of Native Americans. Topics include Native history, politics, economics, education, health, entertainment and recreation, identity, law and government, art, literature, performance, and religion. Explores key debates within Native American studies in relation to identity and identification regarding gender, sexuality, race, class, and ethnicity. (4 units)

20. Introduction to Chicana/o and Latina/o Studies

Since 1996 Latinas/os have constituted the largest (and fastest growing) racial/ethnic minority population in U.S. Despite the significance of this population, most non-Latinas/os have little knowledge of the history, challenges, and important contributions made by this complex population. This class will begin to remedy that gap in knowledge by introducing students to the history and contemporary struggles of Chicanas/os and Latinas/os in the U.S., focusing particular attention on the experiences of the three largest groups of Latinas/os today: Mexican Americans, Puerto Ricans, and Cuban Americans. (4 units)

30. Introduction to African-American Studies

Students will engage in major debates about the history, politics, and cultures of communities of African descent living in the United States. Students will examine texts at the cutting edge of interdisciplinary scholarship in African-American studies in order to explore the key themes of origins, power, community, identity, and expression that are central to understanding race-related issues. In addition, students will create innovative research projects to help develop positions about the ideology of race, the dynamics of group consciousness, and the significance of collective action, self-determination, and aesthetics to the African-American experience. (4 units)

35. African-American Women Writers

Focuses on women writers of the Harlem Renaissance and the intersections of gender, race, and class. Examines paradigms that lead to racial inequity and social injustice, and themes of gender empowerment, miscegenation, colorism, passing, sexuality, and motherhood. Using poetry, short stories, plays, and film, examines how these women engaged in acts of resistance as they sought to rescue themselves from negative stereotypes and redefine themselves in the new world. *Also listed as WGST 14.* (4 units)

36. African-American Literature

Also listed as ENGL 35. For course description see ENGL 35. (4 units)

40. Introduction to Asian-American Studies

Multidisciplinary survey of Asian Americans including Asian cultural heritage, immigration, and the formation of Asian-American communities. Examines worldviews and values, religious beliefs, family and kinship, language, and contemporary community issues of identity, sex roles, stereotyping, employment, and education. (4 units)

50. Introduction to Filipino-American Studies

Explores mainstream representations of the Filipino-American community. Twentieth-century works written by and about Filipino-Americans, with an emphasis on four relevant themes: the legacy of Spanish Colonialism and American Imperialism; U.S. politics and the history of Filipino-American activism and resistance; problems of identity as it relates to class, gender/sexuality, mixed heritages, and generational differences; and Filipino-Americans and popular culture. (4 units)

51. Introduction to the South Asian Experience in the United States

This course addresses mainstream representations of the South Asian American community. Students will read 20th-century works, written by and about South Asian Americans, with an emphasis on the following relevant themes: the history of South Asian immigrants to the United States; U.S. politics and the history of South Asian American activism and resistance; problems of identity as it relates to class, gender/sexuality, mixed heritages, and generational differences; South Asian Americans and popular culture; and the future of South Asian Americans in the United States and the reverse brain drain to India. (4 units)

55. Cross-Racial Electoral Politics

Examination of the historical and contemporary political movements among the major minority groups in the United States since the 1960s. The origins and goals of the Black Power movement, the Chicano/a movement, the Asian-American movement, and the Native American movement will be focused on during the quarter. Each of these movements embodies similar and different trails with regard to their respective group's quest for political power and elected representation. Due to contemporary immigration trends, Latinos and Asian Americans have challenged the black-white paradigm that has traditionally defined U.S. racial politics in local and state-level politics. The result, in some instances, has been interracial competition and conflict at these levels. The necessary elements needed to build and to sustain multiracial coalitions along with what the political future holds for these minority groups will be addressed. *Also listed as POLI 55.* (4 units)

60. Introduction to Journalism: Diversity and Community

Also listed as COMM 40EL. For course description see COMM 40EL. (5 units)

65. Drama of Diversity

Also listed as THTR 65. For course description see THTR 65. (4 units)

70. Multicultural Literature of the United States

Also listed as ENGL 39 and WGST 16. For course description see ENGL 39. (4 units)

95. African-American Independent Filmmakers

This class provides an in-depth analysis and historical overview of independent African-American filmmakers who made significant contributions to the genre of film. We will examine how African-American filmmakers used film as a medium to heighten the consciousness of their audience, combat negative stereotypes, give voice to marginalized or underrepresented groups, and raise social awareness about issues affecting their diverse communities. Using film and text, we will read, discuss, and write about paradigms that lead to inequity and injustice. Specifically, we will examine the intersection of gender, race, and class, and note how these dynamics are illustrated in the cinema of African Americans. We will also understand how African-American filmmakers were able to rise above adversity and hone and sustain their art, while confronting their myriad oppressions. (4 units)

96. Race, Class, and Culture through Film

Explores how filmmakers who are concerned about racism portray the politics, history, and culture of people of African descent. Examines how this medium can humanize subjects who are often objectified and exploited and give voice to communities whose perspectives and opinions have been historically excluded from mainstream discourses. Considers how films can interrogate the physical, cultural, and sometimes, psychological brutality of racist practices, as well as the ways that racism intersects with other forms of marginalization related to class, gender, sexuality, and citizenship. The content, production, and distribution of these cinematic portraits illuminate the political philosophies, hybrid cultures, and emancipating collective action of black communities. Integrates students in faculty research by involving students in a documentary film project about the relationship between the social movements for African liberation and black power. (4 units)

UPPER-DIVISION COURSES

112. Native Peoples of the United States and Mexico

Examination of the national policies, ideologies, and attitudes that have shaped the lives of indigenous peoples living along the U.S.-Mexico border. Issues include cultural survival, cultural change, national and individual identity, gender relations, legal and political problems, and intercultural relations. (5 units)

120. Mexican Immigration to the United States

Examination of the process of Mexican immigration to the United States since 1910 with a focus on the role of Mexican immigrant labor in California agribusiness. An analysis of reasons for Mexican immigration and the responses of the United States to such immigration. Special focus on Mexican farm laborers, the various movements to organize them, and on Cesar Chavez and the United Farm Workers (UFW). (5 units)

121. Chicana/Chicano Families and Gender Roles

An examination of Chicana/Chicano families in the United States. Addresses two general areas in family research: (1) the historical development of Mexican immigrant families and subsequent generations of communities and families of Mexican Americans, and (2) a life-cycle analysis of families with a specialized focus on gender roles and relations. (5 units)

122. Chicana/Chicano Communities

Examination of the development of the social, cultural, political, and economic structures that shape Chicana/Chicano communities in the United States. Themes include the evolution of barrios, the historical and contemporary impact of Mexican land grants, ghettoization, education, gangs, employment, and the political economy. (5 units)

123. The Chicana/Chicano Experience

An examination of the major issues in the Chicana/Chicano experience dealing with historical and contemporary topics. Themes such as race, identity and culture, immigration, community, family, gender, gangs, historical interpretations and the Chicana/Chicano movement will be examined. Politics and socioeconomic conditions including the farmworker movement and educational concerns will be addressed. (5 units)

125. Latinas/os in the United States

Examination of the experience of Latinas/os in the United States, focusing on people of Mexican, Central American (El Salvador, Guatemala, and Nicaragua), and Caribbean (Puerto Rico, Cuba, and the Dominican

Republic) descent. The countries of origin, immigration, settlement patterns, comparative issues, and the condition of Latinas/os in the United States will be explained. Course content addresses both historical and contemporary issues. (5 units)

126. Latina/o Immigrant Detention and Incorporation in the Age of Terrorism

This class will examine shifts in immigration politics with specific focus on the largest population of immigrants in the U.S., namely Latinas/os. In the course of this examination, we will pay particular attention to changes occurring after 1996 and the increasing scrutiny of both documented and undocumented immigrants that has led to surges in the numbers of immigrants detained, apprehended, incarcerated, and deported. We will be mindful of the gendered, class, and racialized dynamics at work in the development and execution of new immigration policy, and we will examine the effect of these shifts on concepts of citizenship. In the end, the course will compel students to consider the moral, political, and legal implications of an immigration policy focused disproportionately on enforcement and challenge them to find comprehensive alternatives. (5 units)

129. Mexican Popular Catholicism and Gender

From the perspective of the sociology of religion, this course contextualizes the lives of Chicanas/Mexicanas in Mexican popular Catholic tradition, practices, and belief system with particular attention to race, class, gender, and sexuality. This course repositions feminist analysis from a brief acknowledgement of the influence of Mexican popular Catholicism in the lives of Chicanas/Mexicanas to a much more encompassing critical analysis of exactly how Catholicism influences women's everyday experiences. Through the use of case studies and secondary research, students will explore the creative and complex ways Chicanas/Mexicanas participate in the workforce, in politics, in public life, and at home as people of faith. *Also listed as RSOC 139 and WGST 152.* (5 units)

132. The History of Hip-Hop

As Chuck D of Public Enemy once said, "Rap both dictates and reflects." This course will examine the historical contexts and diasporic flows that have shaped (and been shaped by) one the most important cultural forms on the planet. We will examine the multicultural roots/routes of rap and hip-hop from its West African bardic traditions to Caribbean and African-American oral traditions; study the development of rap as a musical genre extending from soul, funk, and disco styles; analyze the musical and verbal traits of rap music as exemplary of an urban street/hip-hop aesthetic; discuss its influence on musical technology (i.e., sampling) and cultural influences in the mainstream; investigate concepts of authenticity as well as philosophical and political ideologies; review controversies and debates concerning rap music's articulations of race, gender, and sexuality; and examine the global impact of hip-hop culture. Musical examples and video documentaries will be used in conjunction with class lectures, discussion, and presentations by guest artists. *Also listed as MUSC 132.* (5 units)

135. African Americans in Postwar Film

This course examines the presence of African Americans in mainstream Hollywood films during the postwar period. How did Hollywood representations of African Americans change after World War II? What shifts and continuities occurred during the postwar period? And how did those changes reflect the ebbs and flows of civil rights activism through the 1970s? The goal of this course is to gain a deeper understanding of broader social and historical change by engaging the politics of race through a core aspect of American popular culture. *Also listed as HIST 185.* (5 units)

141. Asian-American Women

An examination of Asian-American women from a historical and contemporary framework within U.S. society. Focuses on the struggle for identity and adjustment in the first generation and the conflicts with subsequent generations of Asian-American women. Analyzes two major themes: (1) the interplay of gender identity formation and conflict, both in the family and in the paid labor force; and (2) the development of individual and collective survival strategies. *Also listed as WGST 111.* (5 units)

142. Asian-American Communities

An examination of selected topics affecting Asian Americans in the United States. Issues include the changing nature of communities, community institutions, anti-Asian violence, occupational glass ceilings, higher education, political mobilization, gender relations, identity formation, and the new patterns of Asian immigration. (5 units)

149. Civil Rights and Anti-Colonial Movements

This course examines the connections between two historical developments often treated separately: the U.S. civil rights struggle and African anti-colonial movements. By placing these two movements in a transnational framework, the course explores the global challenge to the racialized world order of the 19th and early 20th century. How did the civil rights struggle gain momentum in the aftermath of World War II? What was the longer history and role of "black nationalism" and Pan-Africanism in the transnational struggle? What were the connections between the civil rights movement and contemporary independence movements in Africa and Asia? One of the central goals of the course is to show how we can expand our understanding of U.S. history by reaching beyond the interaction between the U.S. government and other nation-states to examine political and cultural change. *Also listed as HIST 153.* (5 units)

150. Urban Education and Multiculturalism

This course takes a critical multicultural approach to understanding urban education, encouraging a connection between theory and personal experience and observations. With a focus on schools in large urban contexts, this course centralizes the experiences of low-income, students of color. Race and class will be two critical lenses with which we will examine (1) the historical context of educational inequality, (2) current issues of educational inequity, and (3) the movement towards educational justice. Students should leave the course with a stronger understanding of the social and historical foundations of U.S. education. (5 units)

152. Multiracial Identities

This course focuses on multiracial identity constructs in African-American and Asian-American literature. Using journey as a metaphor, the course seeks to define "movement" and "place" in contexts where physical, spiritual, voluntary, or forced journeys contribute to the transformative possibilities of race, class, gender, and identity. (5 units)

153. Minority Politics in the United States

Also listed as POLI 153. For course description see POLI 153. (5 units)

154. Women of Color in the United States

Explores the historical and present-day issues for women of color in the U.S. inclusive but not limited to key topics such as sexuality, family, work, media, and activism. Students will examine the impact of racism, sexism, and classism on African-American, Asian-American, Latina, Native American, and white American women in the U.S. Using an interdisciplinary approach, students will also investigate their shared experiences as well as their differences. *Also listed as WGST 112.* (5 units)

155. Racism in the United States

Multidisciplinary study of racism in the United States. Its historical manifestations from the arrival of Europeans in North America to contemporary times; its psychological dimensions (prejudice, stereotypes, discrimination); and its place in the U.S. political economy. Emphasis on African Americans, but includes discussion of Native Americans, Chicanos/as, and Asian Americans. (5 units)

157. Race, Gender, Class, and the College Experience

How do we understand our experiences in college? Explores student experiences in higher education by using lenses that focus on race, gender, and class. Activities, self-reflection, lecture, and discussion will be used to explore student identity, the history of higher education, college access and retention, campus climate, and student development. *Also listed as WGST 114.* (5 units)

160. Documentary Making for Social Justice

This creative course provides students the opportunity to write, dissect, and produce their own 10-minute documentaries that are committed to social justice. In addition to producing their own films, students will examine how documentary filmmakers use film as a medium to heighten the consciousness of their audience, combat negative stereotypes, give voice to marginalized or underrepresented groups, and raise social awareness about issues affecting their diverse communities. Reading film as "text"—complete with their own arguments, aesthetic concerns, social, political, and historical influences—we will understand how documentaries are used to illumine disparities or confront issues of inequity and injustice. Specifically, we will examine the intersection of gender, race, class, spirituality, and sexuality, and note how these dynamics function in film to enlighten our global community. Writers in this course will be moved from idea to script and, ultimately, film. (5 units)

161. Creating Diverse College-Going Communities

In this course, students will develop an understanding of diversity issues in college access, reflect on their own experiences, utilize this knowledge to develop workshop curriculum to enhance college-going, and then implement this curriculum in high school classrooms as a community-based learning opportunity. This course introduces students to the background of colleges and universities in the United States, (including history, institutional types, and diverse student representation), then explores the many factors that influence college access and experiences in college (including class, race, gender, first generation college student status, financial aid and admissions processes). Students will reflect on their own college application and selection process and their experiences in college. Using this knowledge, students will engage in community-based learning (CBL) in which they provide college-related tutoring, mentoring, and workshops for high school students. (5 units)

162. Diversity and the Media

This course focuses on the complex, changing, dynamic, and powerful relationships between dominant and underrepresented groups in society, the mass media, and broader social contexts; and discusses media representations of social groups, contexts of media production, and media use among underrepresented groups. The concepts of hegemony, power, social construction, and intersectionality are vital for understanding these relationships, and vital for the course. The course connects to the field of cultural studies in that it focuses on the everyday uses of symbolic forms and aims to make students aware of, and sensitive to, some of the dynamics connected with media images, symbolic power, and the production of meaning in today's world. Students are encouraged to formulate, question, and put into context, their own versions of reality. *Also listed as COMM 121A.* (5 units)

163. Multiracial Communities in Central California

This course will examine the process of racialization in various communities throughout California and uncover how various ethno-racial groups within these communities live, work, and thrive together in their specific locales. This course will begin by interrogating definitions of community, spatial geography, political economy, as well as attempting to understand social attitudes about race and racism. Then we will examine various cities as case studies to understand the different ways multiracial communities formed. The end goal is to understand the nuances of how multiracial communities, both urban and rural, developed and inscribed meaning onto the geography of California. (5 units)

164. Popular Music, Race and American Culture

Also listed as MUSC 134. For course description see MUSC 134. (5 units)

170. Immigrant Businesses in the United States

Also listed as SOCI 150. For course description see SOCI 150. (5 units)

171. Immigrant Communities

Also listed as SOCI 180. For course description see SOCI 180. (5 units)

178. Race and World War II

World War II stands as one of the most explosive moments in U.S. and global history in the 20th century because of the myriad ways the conflict influenced the postwar world. The United States emerged from the war as the premiere global superpower in terms of combined military, diplomatic, and financial supremacy. However, the United States found itself under increased scrutiny due to its history and maintenance of structural or institutionalized racism. In the midst of military and ideological conflict against the Nazi regime in Germany, and addressing the claims of civil rights and anti-colonial activists, the United States became a composite site of the tensions that defined a democratic society struggling with ongoing racism. This reading seminar explores these tensions, which were exacerbated by the rise of anti-racist perspectives in the anthropological and biological sciences just preceding the war. The assigned readings and discussions engage these phenomena in order to properly explore the significance of "race" in the World War II era. *Also listed as HIST 178.* (5 units)

185. Seminar in U.S. Politics: Racial and Ethnic Politics

Also listed as POLI 195. For course description see POLI 195. (5 units)

194. Peer Educator in Ethnic Studies

Peer educators in ethnic studies work closely with a faculty member to help students in an ethnic studies course understand course material, think more deeply about course material, benefit from collaborative learning, and/or to help students enjoy learning. *Enrollment is by permission of the instructor.* (2 units)

197. Special Topics in Ethnic Studies

(1–5 units)

198. Internship

(2–5 units)

199. Directed Reading/ Directed Research or Internship

A capstone senior project representing a student's specialization in ethnic studies. *Prerequisite: Written approval by the director of the Ethnic Studies Program prior to registration.* (2–5 units)

DEPARTMENT OF HISTORY

Professors Emeriti: Dorothea French, Steven M. Gelber, George F. Giacomini Jr., Mary McDougall Gordon, Jo Burr Margadant, Gerald L. McKevitt, S.J. (*University Historian and Ignacio Ellacuria, S.J., University Professor for Jesuit Studies*), Timothy J. O'Keefe, Peter O'M. Pierson, Sita Anantha Raman

Professors: Barbara A. Molony (*Walter E. Schmidt, S.J. Professor*), Robert M. Senkewicz, David E. Skinner, Nancy C. Unger

Associate Professors: Naomi J. Andrews, Arthur F. Liebscher, S.J. (*Department Chair*), Paul P. Mariani, S.J., Amy E. Randall, Thomas Turley

Assistant Professors: Matthew L. Newsom Kerr, Harry N.K. Odamtten

Courtesy Appointments: William S. Greenwalt (*Professor of Classics*), Ramón D. Chacón (*Associate Professor of Ethnic Studies*), Anthony Q. Hazard Jr. (*Assistant Professor of Ethnic Studies*)

The major program in history provides students with an understanding of the human experience through the analysis of evidence derived from both the recent and more distant past. As history majors, students learn essential skills, understand the breadth and similarities of the human experience, and acquire specific geographical and thematic knowledge. A degree in history provides excellent preparation for careers in education, journalism, media, government, law, business, and international affairs—all of which are careers that utilize the history major's expertise in discovering, organizing, and analyzing the forces that shape the contemporary world.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the bachelor of arts degree, students majoring in history will complete 13 history courses distributed in the following manner:

- Four lower-division courses, which may include HIST 11A and 12A
- Nine upper-division courses, encompassing:
  - HIST 100
  - HIST 101S
  - Seven other upper-division courses, including a designated seminar course taken after the student has completed both HIST 101S and 115 quarter units
- From among the student's lower- and upper-division courses (excluding HIST 100 and 101S), at least one course from four of the following five fields: Global History, the Americas (United States and/or Latin America), Europe, East/South Asia, Africa/West Asia
- An optional senior project (HIST 197), which is essential to be eligible for Honors in History, may be taken as one of the required upper-division courses

Honors in History

History majors may be selected for graduation with Honors in History provided they have a grade point average of 3.5 or higher in their history courses and complete a senior project (HIST 197) in a manner approved by the faculty honors committee.

Students may also qualify for Phi Alpha Theta, the international honor society in history, Phi Beta Kappa, Alpha Sigma Nu, and other academic honor societies, as well as the honors at graduation. For more details, see Chapters 8 and 10.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in history:

- Seven history department courses, at least four of which must be upper-division

LOWER-DIVISION COURSES: CULTURES & IDEAS

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address such topics as civilization and the city; explorations, migrations, and nations; and empires and rights. *Successful completion of C&I I (HIST 11A) is a prerequisite for C&I II (HIST 12A).* (4 units each quarter)

REQUIRED UPPER-DIVISION COURSES

100. Historical Interpretation

An investigation of the diverse methods historians use to examine the past. Required of all majors as a prerequisite for HIST 197. *For history majors or with permission of the instructor.* (5 units)

101S. Historical Writing

Researching and writing history papers. Required of all majors as a prerequisite for HIST 197. *For history majors and minors; majors will be given priority. Recommended to be taken in the sophomore or junior year.* (5 units)

UPPER-DIVISION COURSES: GLOBAL HISTORY

102. Ethnic Cleansing and Genocide in the 20th Century

This course will explore the mass murder of populations defined by ethnicity, nationality, and race in the 20th century. (5 units)

104. World History Until 1492

An overview of the great civilizations of the world prior to the Columbian Exchange, focusing on the geographical, cultural, economic, and political features of the complex societies in East Asia, Southeast Asia, South Asia, Africa, the Middle East, Europe, the Americas, and Oceania. Survey of the foundations of each region. Patterns of connection and interdependence in world history. (5 units)

105. Modern World History

Examination of the significant events, relationships, and ideas that have shaped the development of a transformed international system during the past 300 years. Focus is on a few themes rather than a chronological survey of different regions or cultures. Major themes include the scientific and industrial revolutions, new technologies, nationalism and imperialism, effects of new technologies, anti-colonialism, neo-imperialism, and the new world disorder. (5 units)

112. The Haitian Revolution in World History and Memory

Between 1789 and 1804, the French Caribbean colony of Saint-Domingue was the site of the most profound and violent realization of the revolutionary spirit sweeping the Atlantic in the "age of democratic revolutions." This era is usually associated with the French and American revolutions, both key events in the history of democracy and the rhetorical development of human rights as an agenda in the West. However, both stopped short of the most radical realization of the promises of the age of Enlightenment, particularly with regard to slavery and the racial discrimination that went along with it. The slave revolt on Saint-Domingue and the Haitian revolution, by contrast, witnessed the fullest realization of these promises in the form of the only successful slave revolt in human history. The events on Hispaniola took place at the nexus of world historical forces of globalization through commerce, cross-cultural encounter, racial mixing, and the dispersal of radical Enlightenment ideas and their realization in the form of revolution. As a result of the powerful currents of human history that flowed through the region, the Haitian revolution has proved to be an enduring source of both fear and creativity in the history of race relations, slavery, and abolition, and the forging of a new world identity for the descendants of the once enslaved populations of the island. This course will examine the history of the revolutionary years in Haiti, its near erasure from Western historical memory, and the literary and historical recovery of its importance in the 20th and 21st centuries. (5 units)

116S. Sex and Gender in the Age of High Imperialism

An examination of the role of sexuality and gender in the global expansion of European hegemony in the 19th and 20th centuries. Explores these themes through literature, historical scholarship, and film. *Also listed as WGST 124.* (5 units)

123. History of Plagues, Epidemics, and Infections

An exploration of scientific, social, cultural, political, and ethical contexts in the history of infectious diseases and epidemics. Particular attention is given to how the social framing of epidemiological thought has shaped responses by societies, how public health is an intrinsically political matter, and how we can envision the place played by social justice perspectives in fashioning global public health. (5 units)

143S. Women in Political Revolutions

Comparative, global history seminar that focuses on the political, economic, social, and military leadership of women in several types of revolutionary movements, both violent and nonviolent. Examples are taken from many cultures around the world from the 19th to the 21st centuries. *Also listed as WGST 125.* (5 units)

145. Islam in the Modern World

Comparative study of contemporary Islam. The study of origins and basic doctrines of Islam and its development in the modern world. Main focus will be on Islam's interaction with different cultures, emphasizing political implications of the rise of revivalism. (5 units)

153. Civil Rights and Anti-Colonial Movements

Also listed as ETHN 149. For course description see ETHN 149. (5 units)

197. Senior Project

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of a faculty specialist chosen by the student. *For senior history majors only. Prerequisites: Successful completion of HIST 100 and 101S.* (5 units)

199. Directed Reading/ Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in world and comparative history. *Prerequisite: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: UNITED STATES HISTORY

84. United States Women's History

Examination of the rich history of the changing social, economic, political, and intellectual life of women in the United States. Focuses on issues of gender, race, class, geographic setting, and ethnicity. Primary and secondary sources will be used to examine women's self-conceptions and self-identifications, as well as gender constructs and prescribed roles. *Also listed as WGST 57.* (4 units)

85. United States Environmental History

Study of American environmental history from the pre-Columbian period to the present. Examines the interactions in history between the physical environment and economics, politics, gender, race, ethnicity, and religions. (4 units)

96A. Colonization, Revolution, and Civil War: The United States, Origins to 1877

A survey of the history of the United States from European colonization to Reconstruction. Political, economic, social, and intellectual aspects of America's first 250 years. (4 units)

96B. Globalization, Reform, and War: The United States, 1877 to Present

A survey of the history of the United States from Reconstruction to the present. Political, economic, social, and intellectual aspects of America in an era of industrialization, international involvement, and domestic change. (4 units)

UPPER-DIVISION COURSES: UNITED STATES HISTORY

153. Civil Rights and Anti-Colonial Movements

Also listed as ETHN 149. For course description see ETHN 149. (5 units)

170. The American Revolution

Intensive study of the origins, progress, and culmination of the American Revolution to 1800. (5 units)

171. The New Nation

Social and political reforms, expansion, and changes, sectional, and national politics of the United States between 1800 and 1850. (5 units)

172. The Civil War Era

A study of the major aspects of the antebellum period, the Civil War, and the problems of Reconstruction: the abolitionists, the rise of the Republican Party, the conduct of the war, the role of the free African American, constitutional readjustment, and the rise of the new South. (5 units)

173. United States 1920–1960: From Flappers to Beatniks

This course charts American history from the Roaring Twenties through the Great Depression, New Deal, World War II, and Cold War. Emphasis will be given to politics, economics, race, ethnicity, gender, and international relations. (5 units)

177. Gays and Lesbians in United States History

Examination of the significance of gay men and lesbians across the broad sweep of American history, beginning with pre-Columbian Native Americans and concluding with the modern era. Religious, intellectual, economic, political, and social ramifications will all be examined. *Also listed as WGST 138.* (5 units)

178. Race and World War II

Also listed as ETHN 178. For course description see ETHN 178. (5 units)

180. Native Americans of the United States

Native American history from colonial times to the present from the perspective of native peoples. The focus is on selected Indian peoples in each historical period with an emphasis on native responses to changing historical circumstances, the continuity of Native American cultures, and Indian relations with the U.S. government in the 19th and 20th centuries. Topics include colonialism, Native Americans and environments, regional, and tribal histories. (5 units)

181. United States Women Since 1900

Examination of the rich history of the changing social, economic, political, and intellectual life of American women from 1900. Issues of gender, race, class, geographic setting, and ethnicity will merit appropriate attention. Primary and secondary sources used to examine women's self-conceptions and self-identifications, as well as gender constructs and prescribed roles. Women's role in the Gilded Age, the Progressive Era, World War I, the Depression, and World War II will be followed by extensive coverage of the transitions created/endured by American women from the postwar period to today including the rise of feminism and its ongoing challenges. *Also listed as WGST 173.* (5 units)

182. Sex and Family in American History

History of sex and the family from the 17th to 20th century. Impact of social and economic change on sexuality, courtship, marriage, and child rearing. Cultural construction of gender roles and sexual roles. *Also listed as WGST 174.* (5 units)

184. American Historical Geography

Introduction to the physical and cultural geography of the United States with a special emphasis on California. Texts, maps, and discussions will be used to explore how America's geography is not just the stage for American history but an integral player in that history. (5 units)

185. African Americans in Postwar Film

Also listed as ETHN 135. For course description see ETHN 135. (5 units)

186. California

Survey of the state's history: its Native American origins, Spanish invasion and missionization, Mexican period, U.S. conquest, gold rush, and development to the present. (5 units)

187. The American West: Diverse Peoples, Diverse Places

A study of the importance of the trans-Mississippi West in America's multicultural history with an emphasis on the 19th century. Particular attention is given to a study of myth and reality in westward expansion, the effect of the western migration movement on family and race as experienced by Native Americans, Asian Americans, African Americans, and Mexican Americans. The course explores economic and social factors that have shaped the different regions that constitute the West. It also studies the shifting role of race in the American imagination as manifested in popular Western literature, art, and film. (5 units)

188S. The Making of Modern America: The Progressive Era

This seminar examines the progressives (1880–1920), a group of reformers who struggled to more equitably redistribute the wealth and power of the newly industrialized, urbanized America, achieving mixed results. The impact of this crucial period of reform on politics, gender, class, business, the environment, leisure, and foreign affairs will be examined in order to illuminate current political and social views and actions. Students are evaluated on their informed participation and a research paper. (5 units)

189. Special Topics in United States History

Courses offered occasionally on subjects outside the standard curriculum in modern United States history. (5 units)

191S. Seminar in United States History

Original research and group discussions of selected problems and periods. (5 units)

197. Senior Project

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of a faculty specialist chosen by the student. *For senior history majors only. Prerequisites: Successful completion of HIST 100 and 101S.* (5 units)

199. Directed Reading/ Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in U.S. history. *Prerequisites: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: EUROPEAN HISTORY

16. Ancient Greek Religion

Also listed as CLAS 67. For course description see CLAS 67. (4 units)

17. Ancient Roman Religion

Also listed as CLAS 68. For course description see CLAS 68. (4 units)

94. Europe

A thematic approach to European history, from Early Modern to the present. (4 units)

UPPER-DIVISION COURSES: EUROPEAN HISTORY

108. Ancient Greece

Also listed as CLAS 108. For course description see CLAS 108. (5 units)

109. The Hellenistic Age

Also listed as CLAS 109. For course description see CLAS 109. (5 units)

110. Roman Republic

Also listed as CLAS 110. For course description see CLAS 110. (5 units)

111. Roman Empire

Also listed as CLAS 111. For course description see CLAS 111. (5 units)

115S. Gender, Race, and Citizenship in the Atlantic World

This course charts the dynamics of contestation and reform that shaped the politics of gender and racial equality in the modern Atlantic world through close examination of ideas of autonomy and citizenship from the 18th to the 20th century. Focuses on specific reform movements and revolutionary moments in regard to women's rights, slave emancipation, and colonialism in Europe, the United States, and the European colonial empires. *Also listed as WGST 169.* (5 units)

117. State and Church in the Middle Ages, 1000–1450

This course examines the struggles between state and church that formed modern Western political institutions. Topics include the rise of royal and papal theocracy, the emergence of the idea of limited government, the foundation of representative institutions and modern legal institutions, and the origins of the modern state. (5 units)

118. Representation, Rights, and Democracy, 1050–1792

This course charts the development of modern democracy from its roots in the Middle Ages to its implementation during the American and French revolutions, with a major emphasis on the tension of political theory and practice in its formation. Topics include the evolution of representation and citizenship and the place of social, economic, racial, and gendered forces in the formation. (5 units)

125. History of the Senses

An exploration of the natural and social history of sensory perception in the modern Western world. Special attention is devoted to critically investigating the ways societies have organized the meanings and abilities of sight, hearing, smell, taste, and touch. (5 units)

126. Conflicts in Medieval Christianity

This course is an examination of the religious tensions and conflicts that helped form later medieval Christianity. It treats heresies, the Inquisition, developing notions of orthodoxy and authority, the warrior Christianity of the Crusades, mendicancy and urban attitudes toward Christian perfection, the new monasticism, the development of a new personal approach to religion, lay tensions with the clergy, and the climate of reformation that spread through Europe. (5 units)

127. The World of St. Francis

An examination of the religious, social, and economic background that produced Francis of Assisi, one of the most revolutionary figures of the late Middle Ages. Students will focus on the on shifts in religious perception and new notions of religious perfection gaining popularity in Francis' time, Francis' personal motivations, and the struggle the medieval church experienced attempting to integrate Francis and his followers into its structure. (5 units)

128. Victorian London

This course explores the social and cultural history of London from the 1830s to 1900. Particular emphasis is placed on the strong contrast that Victorian London offered between imperial splendor and grinding misery. Students will examine Victorian perception and experiences of London poverty, filth, prostitution, and assorted vices, as well as art, culture, entertainment, and social reform movements. (5 units)

130A. French Enlightenment and Revolutions in Global Context

This course surveys the history of France from the Enlightenment through the late-19th century with particular emphasis on France's empire and transnational connections. Particular areas of emphasis include the development of French nation identity; the Revolution's key role in the development of democracy and republican political institutions and language; and Enlightenment ideas of religious tolerance and human rights. (5 units)

130B. Late Modern France and the World

This course surveys the history of France from the founding of the Third Republic in 1870 to the present day with particular emphasis on republican universalism, French overseas imperialism, the Dreyfus Affair, the struggle for women's equality, the role and experience of France in the two World Wars, and late-20th century patterns of decolonization and migration. (5 units)

131. War and Democracy in the United Kingdom during World War I

World War I gave birth to a range of difficult questions regarding the relationship between democratic ideals and how societies organize for modern conflicts, setting a strong pattern for the 20th century and continuing to possess strong resonances for today. What strains and opportunities does war place upon democratic societies? Does modern patriotism enable or distort the aspirations of free societies? What forces propel individuals to assist or resist modern war making? This course encourages students to think of war as not an activity solely directed by generals and politicians, but rather a social and cultural event that is formed and negotiated by citizens, workers, and parents. This course places the World War I battlefront in the context of British imperial history, and especially examines how four years of fighting shaped Britain's modern national and civic identity. Readings and materials cover the significance of the home front in many forms including the propaganda machine, the Irish problem, public school tradition, industrial organization and trade union activity, and the women's vote campaign. Civic groups organized by peace protesters, conscientious objectors, suffragists, and striking workers will be explored alongside groups such as national service advocates, Empire leagues, Boys Scouts, and civil preparedness organizations. (5 units)

132. Democracy Under Siege: Ancient Athens and Modern America

Also listed as CLAS 113. For course description see CLAS 113. (5 units)

133. History of Sexuality

Study of the history of sexuality in modern Europe. Examination of topics such as the politics of prostitution, abortion, and pornography; changing sexual norms and practices; the invention of homosexuality and heterosexuality; professional and state involvement in the supervision and regulation of sexualities; intersections of sexuality with gender, ethnicity and race, nationality, class, and religion; connections between sexuality and imperialism; sexual communities and movements. *Also listed as WGST 137.* (5 units)

134. Reformers and Revolutionaries in Tsarist Russia

Examination of politics, society, and culture in the Russian Empire from the reign of Peter the Great to the fall of the Romanov Dynasty in 1917. Themes include state building and modernization; peasant rebellion and the institution of serfdom; the nobility and its discontents; imperial expansion and the multiethnic Empire; the Orthodox Church and popular religion; aristocratic revolt and the Russian revolutionary intelligentsia; Alexander II and the Great Reforms; the growth of radicalism; industrialization and social change; the Revolution of 1905; and the crisis of the Old Regime. (5 units)

136. Gender and National Identity in 20th-Century Eastern and Western Europe

An exploration of the ways in which social anxieties and ideas about gender, race, nationality, class, and sexuality shaped political, economic, social, and cultural developments in Eastern and Western Europe in the 20th century. Topics include: challenges to bourgeois society in pre-war Europe; World War I in a raced and gendered world; the threat of the Soviet East and gender and sexual "disorder" in the 1920s; gender and anti-colonialism in India; the rise of fascism and its intersections with racism, sexuality, and misogyny; World War II and the Holocaust; communism and anti-Semitism in Czechoslovakia; gender and culture in post-World War II Europe; the battle for Algerian independence and the politics of decolonization; the 1968 revolutions in Eastern and Western Europe; the feminist and gay and lesbian liberation movements; masculinity and labor in Thatcher-era Britain; race, gender, and national identity in a postcolonial

and post-Communist Europe; the gendering of communism; ethnic cleansing and the collapse of the Eastern bloc. *Also listed as WGST 172.* (5 units)

137. The Soviet Experiment

An examination of the Soviet experiment to build the first self-proclaimed socialist government in history. Emphasis on political and economic policies, cultural practices, everyday life, and the evolution of social identities and roles, taking into account gender, regional, and national differences. (5 units)

139. Special Topics in European History

Courses offered occasionally on subjects outside the standard curriculum in modern Europe. (5 units)

192S. Seminar in European History

Original research and group discussions of selected problems and periods. (5 units)

197. Senior Project

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of a faculty specialist chosen by the student. *For senior history majors only. Prerequisites: Successful completion of HIST 100 and 101S.* (5 units)

199. Directed Reading/ Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in European history. *Prerequisite: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: AFRICAN, WEST ASIAN, MIDDLE EASTERN HISTORY

91. Africa in World History

Historical survey of the origins and development of African cultures from ancient times to the onset of European colonialism in the 20th century. Focus on selected civilizations and societies. Patterns of African social, economic, and political life. (4 units)

97. West Asia and the Middle East

A survey of the cultural, religious, economic, and political development of western Asia and northeastern Africa up to 1900 CE. (4 units)

UPPER-DIVISION COURSES: AFRICAN, WEST ASIAN, MIDDLE EASTERN HISTORY

140. Life History Approaches to Atlantic-African Worlds

This course will explore writings by African-born individuals during the Atlantic period. It will focus on how they describe their experience of slavery and colonialism in Africa, their perceptions of and experiences in the Western World, as well as African-American perceptions of and experiences in Africa. The themes we will explore will include, but not limited to, colonialism, slave captivity narratives, autobiographical and biographical accounts of free blacks and African slaves in Europe and the Americas, the experiences of African royalty abroad, and African contributions to the birth of African-American culture and the emergence of "Creole" societies in the New World. (5 units)

141. Politics and Development in Independent Africa

African economic, social, and political problems after independence. Major ideologies and international conflict. (5 units)

142. Modern West Asia and North Africa

An examination of the political, economic, and religious forces that helped to shape the contemporary nation-state system of western Asia and northern Africa. Analysis of the consequences of European expansion and colonialism, Zionism, Arab nationalism, and pan-Arabism and the development of political Islam in both regional and global affairs. (5 units)

144S. Islam in Africa

Examination of the history and contemporary role of Islam in Africa. The principal topics are the development of Islamic ideas and institutions, the impact of Islam on African cultures, the role of Islam in contemporary political and economic development, and the interaction between African and non-African organizations and governments. (5 units)

149. Special Topics in African or Middle Eastern History

Courses offered occasionally on subjects outside the standard curriculum in African or Middle Eastern history. (5 units)

157. Black Americans in Africa: Caribbean, United States, and Brazilian Perspectives

This course examines the dynamic and sustained relationship between Africa and the African Diaspora through the multiple lenses of U.S. Blacks, West Indian, Afro-Brazilian, Afro-European, and Afro-Cuban missions, travel, migration, and repatriation to various locations in Africa. The course entails a consideration of the religious exchanges, ethnic/racial transformations, travel tropes, and discourses on Pan-African identity that characterized the Back-to-Africa Movement in various locations of the Atlantic World. It will introduce students to a historiography of Black intellectuals, individuals, and groups who look to Africa as not only an ancestral homeland, but as a site of Christian evangelization, trade, pursuit of freedom and happiness, as well as social justice. (5 units)

193S. Seminar in Africa and Middle East

Original research and group discussion of selected problems and periods. (5 units)

197. Senior Project

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of a faculty specialist chosen by the student. *For senior history majors only. Prerequisites: Successful completion of HIST 100 and101S.* (5 units)

199. Directed Reading/ Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in African history. *Prerequisites: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: EAST ASIAN, SOUTH ASIAN, AND INDIAN OCEAN HISTORY

55. Southeast Asia

Historical survey of the civilizations of Malaysia, Indonesia, Burma, Thailand, Cambodia, Laos, Vietnam, and the Philippines from their origins to the present day. The focus will be on societies, cultures, religions, colonialism, nationalism, and postmodern socioeconomic issues. (4 units)

92. Modern East Asia

An examination of the emergence of modern nations from the rich and diverse cultures of the Pacific and their mutual transformations since 1600. Analyzes linkages within the region and with other regions using concepts borrowed from anthropology, cultural studies, economics, and political science. Particular focus on China, Japan, and Korea. (4 units)

93. South Asia and the Indian Ocean

A survey of the dynamic development of India, Pakistan, Bangladesh, Nepal, Sri Lanka, and the Indian Ocean. Using multidisciplinary concepts, the course focuses on the subcontinent's rich and unique mosaic of social, religious, cultural, economic, and environmental systems against the backdrop of dramatic political events. (4 units)

UPPER-DIVISION COURSES: EAST ASIAN, SOUTH ASIAN, AND INDIAN OCEAN HISTORY

146A. Medieval and Early Modern Japan

From the early medieval period through the middle of the 19th century, Japan developed as a blend of indigenous cultures, religions, and institutions and continental (Chinese and Korean) civilization and later European and American ideologies and imperialism. This course examines culture, ideas, religions, society/economy, and global interactions. (5 units)

146B. Modern Japan in the World

An examination of Japanese history in its global context since 1600, with emphases on its 19th century "economic miracle;" problems faced by a rapidly modernizing and globalizing society; questions of national security and imperialism; reconstructing gender, personhood, and rights of Japanese men and women at several key moments in "modern" society; social and political movements such as suffrage and labor; war and reconstruction; and diaspora, both of people and ideas. (5 units)

147A. Premodern China to 1600

Chinese civilization from the earliest times to the early modern global encounter with the West. Includes Shang oracle bones, Emperor Qin Shi Huang and his terracotta army, the origins of the Great Wall and the Silk Road, Genghis Khan and the Mongol conquest, Tang empresses, Marco Polo, Zheng He and his expedition to Africa, the glories of the Ming dynasty, and Jesuit missionaries. Topics also include the evolution of Confucianism, Taoism, and Buddhism; development of political institutions; analysis of the pre-industrial economic experience; and state-society relations. (5 units)

147B. Modern China

Social, political, economic, and cultural development of China from the 17th to 21st centuries. Topics include China's state formation from monarchy to socialism; cultural history from Confucianism to individualism; issues of poverty and population; intellectual and cultural changes and the role of the West in these changes; and the indigenous forces shaping China's modern evolution. (5 units)

148. China and the Chinese Diaspora

This course explores the Chinese diaspora (overseas Chinese) both as emigrants from a China which currently has a population of 1.4 billion, and as immigrants to various Chinese communities throughout the world: the Americas, Europe, and East and Southeast Asia. Overseas Chinese currently number 15 million people, making it one of the largest groups of migrants in the world. The course will situate the successive waves of Chinese migration in their economic, social, and political contexts. While the course is primarily historical, we will also use interdisciplinary methodologies from political science, economics, sociology, and anthropology. (5 units)

150. Gender and Sexuality in East Asia

The historical study of women and men is necessarily the historical study of gendered societies. While there are important linkages among China, Japan, and Korea—for example, shared religious traditions, the varied experiences of imperialism, the central role of women and the construction of gender in modernity, and the physical movement of women and men among the three countries—there are also significant differences. This course will explore changes over time in sexualities, work experiences, civic culture, the gendered state, and marriage and family in the three countries. *Also listed as WGST 126.* (5 units)

151. Imperialism in East Asia

This course examines the cultural, social, political, and economic effects of imperialism in East Asia. Imperialism took varied forms, depending on the interests of the imperialist country and the conditions in the country under imperialism. Readings will use both literary and historical sources. (5 units)

152. History of Christianity in China

The history of Christianity in China from the seventh century to the present. We will explore the earliest evidence of Christianity in China, the Franciscan missions to the Mongols, the arrival of the Jesuits, the Chinese rites controversy, the persecution of Christianity, the rise of Protestant missions, and the explosive growth of Christianity in China today. We will also explore issues of church-state conflict, religious debate and conversion, and the complex interplay between foreign missions and Chinese developments. (5 units)

154. Modern India

This course explores the history of India after the Portuguese arrival to the present. Themes include economic development and trade; imperialism; Hindu socioeconomic reform and its relevance to women and the caste system; Muslim awakening and modernization; Indian nationalism; Gandhi, Nehru, and Jinnah; economic development and environment; national cohesion; and communalism. (5 units)

159. Special Topics in Asian History

Courses offered occasionally on subjects outside the standard curriculum in Asian history. (5 units)

195S. Seminar in Asian History

Original research and group discussion of selected problems and periods. (5 units)

197. Senior Project

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of a faculty specialist chosen by the student. *For senior history majors only. Prerequisites: Successful completion of HIST 100 and 101S.* (5 units)

199. Directed Reading/ Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in Asian history. *Prerequisites: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: LATIN AMERICAN HISTORY

64. Central America

Survey of Central America from independence to the present. Focus on three Central American countries: Nicaragua, Guatemala, and El Salvador. Emphasis on recent developments; social, economic, and political problems (militarism, dictatorship); and the nature of U.S. policy vis-à-vis Central America. (4 units)

95. Modern Latin America

A survey of the modern experience of the major nations of Latin America, with emphasis on economic and commercial relationships, populism, the international dimensions of authoritarianism, national self-determination, and the context of recent democratic movements. (4 units)

UPPER-DIVISION COURSES: LATIN AMERICAN HISTORY

161. Modern Mexico

Mexico since the Benito Juárez regime to the present. Emphasis on the Porfiriato, the 1910 Revolution and its institutionalization, and the development of the modern state. (5 units)

162. Argentina

A historical examination of the peoples, events, regional situations, and transoceanic relationships that have shaped Argentina and southern South America. (5 units)

163. Cuba and the Caribbean

A survey from the colonial period to the present of three Caribbean nations: Cuba, the Dominican Republic, and Puerto Rico. Emphasis on 20th-century developments; social, economic, and political issues (dictatorship, revolution, social stratification); and the role of U.S. policy vis-à-vis Cuba and the Caribbean. (5 units)

164S. The Catholic Church in Latin America

Readings, discussion, and research focused on the historical place, social role, and religious significance of the Catholic Church in Latin America, with attention to church-state issues, liberation theology, and the impact of the Church in nations affected by development, globalization, and poverty. (5 units)

166. Latin America: Empires

A survey of the comparative experience of the original migrants, European colonizers, and resulting juncture of cultures and histories from the initial settlement through the native empires, establishment of the European colonies, the Enlightenment, and the birth of new nations. (5 units)

169. Special Topics in Latin American History

Courses offered occasionally on subjects outside the standard curriculum in Latin American history. (5 units)

196S. Seminar in Latin American History

Original research and group discussion of selected problems and periods. (5 units)

197. Senior Project

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of a faculty specialist chosen by the student. *For senior history majors only. Prerequisites: Successful completion of HIST 100 and 101S.* (5 units)

199. Directed Reading/Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in world and comparative history. *Prerequisites: Permission of department chair and instructor.* (5 units)

INDIVIDUAL STUDIES PROGRAM

Director: Jean J. Pedersen

The Individual Studies Program (ISP) major has been established to meet the needs of students who wish to design a course of studies with a multidisciplinary perspective. Students who want to pursue an ISP major should begin by scheduling a meeting with the program director to obtain a list of instructions regarding administrative details.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of arts or bachelor of science degrees, students majoring in ISP must complete the following departmental requirements:

- Be a full-time student at Santa Clara for at least one year
- Have fewer than 111 quarter units of academic work completed at the time of application
- Have a minimum 3.0 grade point average
- Submit a Petition for Admission to the ISP director for review and approval. The petition should include:
  - A clear, logical, and conceptually refined description of the proposed program
  - A well-developed argument, supported by appropriate evidence, showing that no existing academic major can meet the student's educational objectives
  - A plan of study listing courses, seminars, internships, etc., that meets the student's educational objectives and fulfills the requirements of the Undergraduate Core Curriculum

LIBERAL STUDIES PROGRAM

Professor Emerita: Eleanor W. Willemsen
Professors: Barbara Burns (*Director*), Timothy C. Urdan
Associate Professors: Carol Ann Gittens, Brett Johnson Solomon
Senior Lecturer: Elizabeth Day

The Liberal Studies Program offers a degree program leading to the bachelor of science in liberal studies. The liberal studies major is designed for undergraduates interested in a career working with children in a school or community-based setting. There are two emphases available within liberal studies: Pre-teaching and child studies, each of them leading to a B.S. degree. The pre-teaching emphasis provides a broad liberal arts background related to the elementary school curriculum, as well as a set of courses designed to introduce future teachers to the research foundations of best practices in education, child development, and issues and policies related to the schools. The child studies emphasis is designed for students interested in careers focusing on children such as, social work, counseling, family law, directing childcare programs, speech and language pathology, occupational therapy, or leading nonprofit agencies that provide community services to children and families. Students with a B.S. in liberal studies in the pre-teaching emphasis are prepared to go on to postgraduate studies related to their career goals such as teacher credential programs. Students with a B.S. in liberal studies in the child studies emphasis are prepared to go on to postgraduate programs such as master's degree programs in psychology, social work, or other fields. Advisors in liberal studies can provide information about teaching credential programs for the pre-teaching emphasis and graduate study programs for the child studies emphasis students.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in liberal studies must complete the following program requirements:

Requirements for Pre-Teaching Emphasis:

- LBST 66,LBST 70, LBST 75, LBST 80, LBST 100, LBST 106, LBST 109, LBST 138, LBST 184, LBST 197, LBST 198A or 198B, ANTH 3 or SOCI 1, BIOL 3, 5, 6 or ENVS 131, CHEM 19, ENGL 160, HIST 96A or HIST 96B, HIST 104, HIST 105, HIST 184, MATH 8, MATH 44, MATH 45, PHYS 1, 2, 3, 4, 5, or ENVS 23, POLI 1, PSYC 2, PSYC 134, PSYC 185
- Four (4) units of MUSC, THTR, or DANC

Requirements for Child Studies Emphasis:

- LBST 70, LBST 75, LBST 80, LBST 100, LBST 107, LBST 108, LBST 138, LBST 195, ANTH 3 or SOCI 1, ENGL 160, MATH 8, POLI 1, PSYC 2, PSYC 65, PSYC 155, PSYC 172, PSYC 185, SOCI 30, SOCI 153, SOCI 157, SOCI 165
- Two (2) science courses from the PHYS, BIOL, CHEM courses listed for Pre-Teaching emphasis

LOWER-DIVISION COURSES

1. Careers in Child Studies

This course is an opportunity to discover how a background in child studies can help you fulfill your possible career goals. Professionals from a variety of fields related to social work, psychology, teaching, medicine, child advocacy, law, public health, government, human services, daycare, and community services will provide a glimpse into what it takes to be successful in these dynamic and challenging fields. Students investigate a career of their choice based on their interests, aptitudes, skills, and strengths, and work towards developing a media and print ad campaign relating the assets of a strong child studies background with their chosen interest. (2 units)

66. Movement Education

Learn the movement concepts and skill themes central to any physical education program for children. Develop sound instructional approaches for teaching physical education, dance, and athletics, and for creating kinesthetic lesson plans to teach all academic subjects. Exploration of developmentally appropriate themes and activities that foster the interaction of physical, social, cognitive, and motor learning; will learn movement analysis techniques. Teaching simulations and working with children. Movement lab included. (4 units)

70. Community Health Education

This course explores the environmental, economic, political, and social factors influencing health on a local and national level, with an emphasis on how health literacy could be integrated into the K–12 curriculum and parent education. (4 units)

75. Technology and Education

This course explores the relationship between technology, society, and education. Students investigate the appropriate role of technology in educational reform, evaluate the personal impact of social media on students, and propose solutions to the pressing educational needs of our society. Interactive and engaging discussions and team projects highlight the dynamic quality of these issues. (4 units)

80. Information Literacy

This course in information literacy will introduce students to a wide variety of databases and Internet sources useful in preparing lessons, papers, presentations, grant proposals, and informing oneself generally about a topic. Students will also be taught to regard these sources of information as unequal in value and how to assess the value to place on a particular source. These skills will be used in preparing a course project. *This course is a prerequisite for LBST 100.* (4 units)

UPPER-DIVISION COURSES

100. Research in Social Sciences

Provides an introduction to educational research design as it informs hypothesis testing and theory development. Nurtures students' skills at reading and understanding educational research. Though the emphasis will be placed on being a consumer of research rather than a producer, in order to fully understand empirical findings it is essential that one understands the process of scientific inquiry. Surveys quantitative and qualitative research methods, and emphasizes the relationship between a research problem, the exploration of that problem, and the inferences that can be drawn from empirical inquiry. Students will learn how to judge the reliability and critique the validity of research on such things as learning and cognition, curriculum and instruction, child development, reading and literacy, etc., using general social science design principles. Writing for academic audiences is also a course objective. *Prerequisite: LBST 80.* (5 units)

105. Mindful Leadership

This course offers students an opportunity to collaborate with elementary educators, teaching mindfulness and leadership strategies to students in a classroom setting. Students will investigate the relationship between mindfulness, leadership, social-emotional learning, and achievement.

106. Urban Education and Multiculturalism

Surveys some of the historical, cultural, economic, educational, moral, and political forces, which confront urban educators with a view toward understanding the impact of these forces on teaching and learning. Students in this course will be exposed to academic and community resources. They will be given an opportunity to become active members of an urban school community, study theories of urban school practices, and reflect on both. *Note: This course requires participation in community-based learning experiences off campus.* (5 units)

107. Children, Family, and Community

This course provides students with a theoretical understanding of the ecological model, and how diverse human experiences impact the systems that influence a young child's development (birth to age eight). The family-centered approach, diversity, and community-based learning will be the foundation for students to explore issues such as independence and interdependence, discipline, attachment, coping with separation, child-abuse, conflict resolution, problem solving, and gender issues. *Note: This course requires participation in community-based learning experiences off campus.* (5 units)

108. Youth, Family, and Community Leadership and Advocacy

Through various conversations with local community leaders, this course explores relevant current issues facing youth, teens, and families in our community. Students explore successful services, leadership strategies, and related challenges within nonprofit and governmental agencies in addressing such issues as violence, gangs, drug abuse, suicide, and teen pregnancy. *LBST 107 recommended.* (5 units)

109. Children, Art, and Society

An investigation of the role of art and creativity in human development, and the personal and societal impact of providing access to high quality arts experiences in all schools. Topics include methods for developing critical and integrative thinking through hands-on, non-machine mitigated arts experiences, curriculum design in the arts, contemporary legislation and advocacy efforts on behalf of the arts, and the role of the arts in identity formation, cultural expression, and issues of justice. This course culminates with global perspectives and movements in arts education addressing politics, peace, diplomacy, the environment, and other major concerns of our time. (5 units)

138. Exceptional Child

Introduction to childhood mental retardation, learning disabilities, behavior disorders, communication (speech and language) disorders, hearing impairments, physical and health impairments, severe handicaps, and the gifted and talented. The impact of these differences in comparison with typical development is addressed. *Note: This course requires participation in community-based learning experiences off campus.* (5 units)

156. Advocacy for Children

This course is designed to provide an introduction to the field of child advocacy. The focus is on professions that serve children, including teaching, social work, counseling, child psychology, family law, and nonprofit agencies that provide community services to children and families. Course will include discussions, team projects, and a weekly community placement. (5 units)

184. Children's Literacy & Diversity

This course provides an introduction to the developmental and learning processes involved when children become readers. Students will learn to develop and demonstrate instructional strategies that foster a holistic view of learning to read and write—to emphasize connections among all areas of the curriculum and the interrelatedness of knowledge and the mutually reinforcing skills of reading, writing, listening, speaking, viewing, and representing visually. *Note: This course requires participation in community-based learning experiences off campus.* (5 units)

195. Senior Seminar: Child Studies

This child-studies senior seminar capstone course is designed to provide future professionals with the research skills, resources, and support that they need to be thoughtful, balanced, and successful contributors to the community. Through discernment regarding specific issues/topics that impact children and families, students will utilize information literacy and research methodology skills to conduct university-level research that will result in a major paper and/or project. *Prerequisites: LBST 80 and 100.* (5 units)

196. Future Teachers Project Seminar

A one-unit seminar addressing education and the teaching profession for students participating in the Future Teachers Project. May be repeated for credit. (1 unit)

197. Senior Seminar: Pre-Teaching

This pre-teaching senior-seminar capstone course is designed to provide future teachers with the research skills, resources, and support that they need to be thoughtful, balanced, and successful teachers. Through discernment regarding specific issues/topics that impact teachers, students, or schools, students will utilize information literacy and research methodology skills to conduct university-level research that will result in a major paper and/or project. *Prerequisites: LBST 80 and 100.* (5 units)

198A. Elementary Teaching Practicum and Social Foundations

This course focuses on understanding the role of school in the broader context of society. Awareness of the challenges facing education will be examined with the objective of critically evaluating and developing reasoned opinions that address the question: "What is to be done?" Through deliberating on a chosen topic, students create a short documentary that provides policy recommendations, strategies, and proposals to improve the current state of education. (5 units)

198B. Secondary Teaching Practicum and Social Foundations

This course focuses on understanding the role of school in the broader context of society. Awareness of the challenges facing education will be examined with the objective of critically evaluating and developing reasoned opinions that address the question: "What is to be done?" Through deliberating on a chosen topic, students create a short documentary that provides policy recommendations, strategies, and proposals to improve the current state of education. (5 units)

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Professors: Gerald L. Alexanderson (*Michael and Elizabeth Valeriote Professor*), José Barría, Daniel N. Ostrov, Jean J. Pedersen, Edward F. Schaefer, Richard A. Scott, Dennis C. Smolarski, S.J.
Associate Professors: Glenn D. Appleby (*Department Chair*), Robert A. Bekes, Frank A. Farris, Leonard F. Klosinski, S. Tamsen McGinley, Nicholas Q. Tran, Byron L. Walden
Assistant Professors: Nicolette Meshkat, George Mohler
Senior Lecturer: Laurie Poe
Lecturers: Corey Irving, Natalie Linnell, Mary Long, Mona Musa, Maribeth Oscamou

The Department of Mathematics and Computer Science offers major programs leading to the bachelor of science in mathematics or the bachelor of science in computer science (mathematics), as well as required and elective courses for students majoring in other fields. Either major may be pursued with any of three principal goals: preparation for graduate studies leading to advanced degrees in pure mathematics, applied mathematics, computer science, statistics, operations research, or other fields; preparation for secondary school teaching of mathematics or computer science; or preparation for a research career in business, industry, or government. The major in mathematics may be taken with an emphasis in applied mathematics, financial mathematics, mathematical economics, or mathematics education. The emphasis in mathematics education is designed to prepare majors to take the California Subject Examination for Teachers (CSET). The major in computer science may be taken with an emphasis in cryptography and security. Minors in mathematics or computer science are also available.

The Department of Mathematics and Computer Science maintains a program for the discovery, encouragement, and development of talent in mathematics or computer science among undergraduates. This program includes special sections, seminars, individual conferences, and directed study guided by selected faculty members. Students are also encouraged to participate actively in research projects directed by faculty.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in mathematics and computer science (mathematics) must complete the following departmental requirements for the respective degree:

Major in Mathematics

- CSCI 10 (or demonstrated equivalent proficiency in computer programming)
- MATH 11, 12, 13, 14, 22, 51, 52, and 53
- PHYS 31 and 32, with the associated laboratory section for PHYS 32. Students with a special interest in the application of mathematics in the social sciences or economics may substitute ECON 170 or 173 for PHYS 32. Students planning to teach in secondary schools may substitute, with approval of the department chair, PHYS 11 and 12 for PHYS 31 and 32.

- Seven approved 5-unit upper-division courses in mathematics or computer science, which must include at least one course in analysis (MATH 102, 105, or 153), at least one course in algebra (MATH 103 or 111), and at least one course selected from geometry (MATH 101, 113, or 174), or from discrete mathematics (MATH 176 or 177), or from applied mathematics (MATH 122, 125, 144, 155, 165, or 166)

Students planning to undertake graduate studies in pure mathematics should plan to take MATH 105, 111, 112, 113, 153, and 154. Students planning to undertake graduate studies in applied mathematics should complete the emphasis in applied mathematics and take MATH 105, 144, 153, 154, and 155.

Emphasis in Applied Mathematics

Complete the requirements for a bachelor of science in mathematics with the following specifications:

- MATH 102, 122, 123, and 166
- Two courses from MATH 125, 144, 155, 165, 178, CSCI 164, or an approved alternative 5-unit upper-division mathematics (but not computer science) course

Emphasis in Data Science

Complete the requirements for a bachelor of science degree in mathematics with the following specifications and additions:

- MATH 122, 123
- CSCI 10, 60, 61, 183
- COEN 178
- Two courses from CSCI 163, 164; CSCI/MATH 165, 166; COEN 166, 169; ECON 174

Emphasis in Financial Mathematics

Complete the requirements for a bachelor of science degree in mathematics with the following specifications and additions:

- MATH 102, 122, 123, 125, 144, 166
- BUSN 70
- ACTG 11, 12
- FNCE 121, 124

Emphasis in Mathematical Economics

Complete the requirements for a bachelor of science degree in mathematics with the following specifications and additions:

- MATH 102, 122, 123, 166
- ECON 113
- Three courses from MATH 125, ECON 170–174

Emphasis in Mathematics Education

Complete the requirements for a bachelor of science degree in mathematics with the following specifications and additions:

- MATH 101, 102, 111, 122, 123 (or 8), 170, 175 (or 178)
- EDUC 198B

Students are strongly recommended to complete the urban education minor.

Major in Computer Science (Mathematics)

- MATH 11, 12, 13, 14, 51, 52, 53
- CSCI 10, 60, 61
- PHYS 31 and 32 with the associated laboratory section for PHYS 32
- COEN 20 and 20L, COEN (or ELEN) 21 and 21L
- CSCI 163 and one course from CSCI 161, 166, or 167
- Two upper-division courses from MATH 144, 176, 177; CSCI 161, 162, 164, 165, 166, 167, 168, 169, 181, 182, 196, 197.
- Two 5-unit upper-division MATH courses, except MATH 144, 165, 166, 176, 177. (Although not required, MATH 122 is highly recommended.)
- COEN 177 and 177L and one other approved 4- or 5-unit COEN upper-division course
- One additional approved 4- or 5-unit upper-division course from COEN, CSCI, or MATH 144, 176 or 177

Students are encouraged to select one of the following areas of focus to guide their choices of upper-division courses:

- ***Foundations:*** CSCI 161, MATH 176 and 177, COEN 173
- ***Numerical Computation:*** MATH 144, CSCI 165 and 166, COEN 145
- ***Software:*** CSCI 161 and 169, COEN 174, COEN 176 or 178
- ***Graduate School Preparation:*** CSCI 166, MATH 176 and 177, COEN 175
- Another area of focus developed in conjunction with the department

Emphasis in Cryptography and Security

Complete the requirements for a bachelor of science in computer science (mathematics) with the following specifications:

- MATH 178
- CSCI 181
- COEN 146 and 152
- MATH 122 and COEN 150/250 are highly recommended

For the major in either mathematics or computer science (mathematics), at least four of the required upper-division courses in the major must be taken at Santa Clara. A single upper-division course in the Department of Mathematics and Computer Science may not be used to satisfy requirements for two majors or minors.

Emphasis in Data Science

Complete the requirements for a bachelor of science degree in computer science with the following specifications and additions:

- MATH 122, 123
- CSCI 10, 60, 61, 183
- COEN 178
- Two courses from CSCI 163, 164; CSCI/MATH 165, 166; COEN 166, 169; ECON 174

REQUIREMENTS FOR THE MINORS

Minor in Mathematics

Students must fulfill the following requirements for a minor in mathematics:

- MATH 11, 12, 13, 14, and either 52 or 53
- Three approved 5-unit upper-division mathematics courses with no more than one course selected from MATH 165 and 166. In place of MATH 165 or 166, a student may select an upper-division computer science course.

Minor in Computer Science

Students must fulfill the following requirements for a minor in computer science:

- CSCI 10, 60, and 61
- MATH 12 or 51
- COEN 20 and 20L, COEN 21 and 21L
- Three approved 5-unit upper-division computer science courses. In place of an upper-division computer science course, a student may select from MATH 144, 176, or 177.

PREPARATION IN MATHEMATICS FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach mathematics or computer science in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. The secondary teaching credential additionally requires the completion of an approved credential program, which can be completed as a fifth year of study and student teaching, or through an undergraduate summer program internship. Students who are contemplating secondary school teaching in mathematics or computer science should consult with the coordinator in the Department of Mathematics and Computer Science as early as possible.

LOWER-DIVISION COURSES: MATHEMATICS

4. The Nature of Mathematics

For students majoring in arts and humanities. Topics chosen from set theory, logic, counting techniques, number systems, graph theory, financial management, voting methods, and other suitable areas. Material will generally be presented in a setting that allows students to participate in the discovery and development of important mathematical ideas. Emphasis on problem solving and doing mathematics. (4 units)

6. Finite Mathematics for Social Science

Introduction to finite mathematics with applications to the social sciences. Sets and set operations, Venn diagrams, trees, permutations, combinations, probability (including conditional probability and Bernoulli processes), discrete random variables, probability distributions, and expected value. (4 units)

8. Introduction to Statistics

Elementary topics in statistics, including descriptive statistics, regression, probability, random variables and distributions, the central limit theorem, confidence intervals and hypothesis testing for one population and for two populations, goodness of fit, and contingency tables. (4 units)

9. Precalculus

College algebra and trigonometry for students intending to take calculus. Does not fulfill the Undergraduate Core Curriculum requirement in mathematics. (4 units)

10. Introduction to Computer Programming and Computer Science

Introduction to computer programming and computer science. Basic programming structures, conditionals, loops, functions, arrays. Topics relating to the applications of and social impact of computing, including privacy, artificial intelligence, computation in physics, psychology, and biology. Discussion of cryptography, computation through history, networks, hardware. CSCI 10 may not be taken for credit if the student has received credit for COEN 10 or a similar introductory programming course. *Prerequisite: MATH 11 (may be taken concurrently) or permission of the instructor. Co-requisite: CSCI 10L.* (4 units)

11. Calculus and Analytic Geometry I

Limits and differentiation. Methods and applications of differentiation. Ordinarily, only one of MATH 11 or 30 may be taken for credit. *Note: MATH 11 is not a suitable prerequisite for MATH 31 without additional preparation. Prerequisite: High school trigonometry and either Calculus Readiness Exam or MATH 9. If MATH 9 is taken, a grade of C– or higher is strongly recommended before taking MATH 11.* (4 units)

12. Calculus and Analytic Geometry II

Further applications of differentiation. Integration and the fundamental theorem of calculus. Methods and applications of integration. Only one of MATH 12 or 31 may be taken for credit. *Note: MATH 30 is not a suitable prerequisite for MATH 12 without additional preparation. Prerequisite: MATH 11 or equivalent. A grade of C– or higher in MATH 11 is strongly recommended before taking MATH 12.* (4 units)

13. Calculus and Analytic Geometry III

Infinite series, vectors, vector functions, quadric surfaces. *Prerequisite: MATH 12 or equivalent. A grade of C– or higher in MATH 12 is strongly recommended before taking MATH 13.* (4 units)

14. Calculus and Analytic Geometry IV

Curvilinear coordinate systems, partial derivatives, multiple integrals, vector calculus. *Prerequisite: MATH 13 or equivalent. A grade of C– or higher in MATH 13 is strongly recommended before taking MATH 14.* (4 units)

22. Differential Equations

Explicit solution techniques for first order differential equations and higher order linear differential equations. Use of numerical, series, and Laplace transform methods. Applications. Only one of MATH 22 or AMTH 106 may be taken for credit. *Prerequisite: MATH 14.* (4 units)

30. Calculus for Business I

Differentiation and its applications to business, including marginal cost and profit, maximization of revenue, profit, utility, and cost minimization. Natural logarithms and exponential functions and their applications, including compound interest and elasticity of demand. Study of the theory of the derivative normally included in MATH 11, except trigonometric functions not included here. Ordinarily, only one of MATH 11 or 30 may be taken for credit. *Note: MATH 30 is not a suitable prerequisite for MATH 12 without additional preparation. Prerequisite: Calculus Readiness Exam or MATH 9. If MATH 9 is taken, a grade of C– or higher is strongly recommended before taking MATH 30.* (4 units)

31. Calculus for Business II

Integration and its applications to business, including consumer surplus and present value of future income. Functions of several variables and their derivatives; Emphasis throughout the sequence on mathematical modeling, the formulation of practical problems in mathematical terms. Only one of MATH 12 or 31 may be taken for credit. *Note: MATH 11 is not a suitable prerequisite for MATH 31 without additional preparation. Prerequisite: MATH 30 or equivalent. A grade of C– or higher in MATH 30 is strongly recommended before taking MATH 31.* (4 units)

44. Mathematics for Elementary Teachers I

Problem solving and logical thinking approach to whole numbers: their nature, counting, place value, computational operations, properties, and patterns. Intuitive two-dimensional geometry and measurement, especially metric. *Note: This course requires participation in community-based learning experiences off campus.* (4 units) NCX

45. Mathematics for Elementary Teachers II

Problem solving and logical thinking approach to fractional numbers, integers, rational numbers, and real numbers: their nature, computational operations, properties, and patterns. Intuitive three-dimensional geometry and measurement, especially metric. Functions, relations, and graphs. *Prerequisite: MATH 44.* (4 units) NCX

51. Discrete Mathematics

Logic, methods of proof, sets, functions, modular arithmetic, cardinality, induction, elementary combinatorial analysis, recursion, and relations. *Also listed as COEN 19.* (4 units)

52. Introduction to Abstract Algebra

Groups, homomorphisms, isomorphisms, quotient groups, fields, integral domains; applications to number theory. *Prerequisite: MATH 51 or permission of the instructor.* (4 units)

53. Linear Algebra

Vector spaces, linear transformations, algebra of matrices, eigenvalues and eigenvectors, and inner products. *Prerequisite: MATH 13.* (4 units)

90. Lower-Division Seminars

Basic techniques of problem solving. Topics in algebra, geometry, and analysis. (1–4 units)

UPPER-DIVISION COURSES: MATHEMATICS

Note: Although CSCI 10 is not explicitly listed as a formal prerequisite, some upper-division courses suggested for computer science (mathematics) majors may presuppose the ability to write computer programs in some language. A number of upper-division courses do not have specific prerequisites. Students planning to enroll should be aware, however, that all upper-division courses in mathematics require some level of maturity in mathematics. Those without a reasonable background in lower-division courses are advised to check with instructors before enrolling.

100. Writing in the Mathematical Sciences

An introduction to writing and research in mathematics. Techniques in formulating research problems, standard proof methods, and proof writing. Practice in mathematical exposition for a variety of audiences. Strongly recommended for mathematics and computer science majors beginning their upper-division coursework. MATH 100 may not be taken to fulfill any mathematics or computer science upper-division requirements for students majoring or minoring in mathematics or computer science. Offered in alternate years. (5 units)

101. A Survey of Geometry

Topics from advanced Euclidean, projective, and non-Euclidean geometries. Symmetry. Offered in alternate years. (5 units)

102. Advanced Calculus

Vector calculus, functions of several variables, elliptic integrals, line integrals, Stokes's theorem, and the divergence theorem. *Prerequisites: MATH 14 and 53.* (5 units)

103. Advanced Linear Algebra

Abstract vector spaces, dimensionality, linear transformations, isomorphisms, matrix algebra, eigenspaces and diagonalization, Cayley-Hamilton Theorem, canonical forms, unitary and Hermitian operators, applications. *Prerequisite: MATH 53.* (5 units)

105. Theory of Functions of a Complex Variable

Analytic functions. Cauchy integral theorems, power series, conformal mapping. Riemann surfaces. Offered in alternate years. (5 units)

111. Abstract Algebra I

Topics from the theory of groups. Offered in alternate years. *Prerequisites: MATH 52 and 53.* (5 units)

112. Abstract Algebra II

Rings and ideals, algebraic extensions of fields, and the Galois theory. Offered in alternate years. *Prerequisite: MATH 111.* (5 units)

113. Topology

Topological spaces and continuous functions. Separability and compactness. Introduction to covering spaces or combinatorial topology. Offered in alternate years. *Prerequisite: MATH 52, 53, or 102.* (5 units)

122. Probability and Statistics I

Sample spaces; conditional probability; independence; random variables; discrete and continuous probability distributions; expectation; moment-generating functions; weak law of large numbers; central limit theorem. *Prerequisite: MATH 14.* (5 units)

123. Probability and Statistics II

Confidence intervals and hypothesis testing. Maximum likelihood estimation. Analysis of variance (ANOVA) and analysis of categorical data. Simple and multiple linear regression. Optional topics may include sufficiency, the Rao-Blackwell theorem, logistic regression, and nonparametric statistics. Applications. *Prerequisites: MATH 53 or permission of instructor and MATH 122.* (5 units)

125. Mathematical Finance

Introduction to Ito calculus and stochastic differential equations. Discrete lattice models. Models for the movement of stock and bond prices using Brownian motion and Poisson processes. Pricing models for equity and bond options via Black-Scholes and its variants. Optimal portfolio allocation. Solution techniques will include Monte Carlo and finite difference methods. *Prerequisite: MATH 53 or permission of instructor and MATH 122 or AMTH 108.* (5 units)

133. Logic and Foundations

Deductive theories. Theories and models. Consistency, completeness, decidability. Theory of models. Cardinality of models. Some related topics of metamathematics and foundations. Open to upper-division science and mathematics students and to philosophy majors having sufficient logical background. Offered on demand. (5 units)

134. Set Theory

Naive set theory. Cardinal and ordinal arithmetic. Axiom of choice and continuum hypothesis. Axiomatic set theory. Offered on demand. (5 units)

144. Partial Differential Equations

Linear partial differential equations with applications in physics and engineering, including wave (hyperbolic), heat (parabolic), and Laplace (elliptic) equations. Solutions on bounded and unbounded domains using Fourier series and Fourier transforms. Introduction to nonlinear partial differential equations. Offered in alternate years. *Prerequisite: MATH 14. Recommended: MATH 22 or AMTH 106.* (5 units)

153. Intermediate Analysis I

Rigorous investigation of the real number system. Concepts of limit, continuity, differentiability of functions of one real variable, uniform convergence, and theorems of differential and integral calculus. Offered in alternate years. *Prerequisite: MATH 102 or 105 or permission of the instructor.* (5 units)

154. Intermediate Analysis II

Continuation of MATH 153. Offered in alternate years. *Prerequisite: MATH 153.* (5 units)

155. Ordinary Differential Equations

Solutions to systems of linear differential equations. Behavior of nonlinear autonomous two-dimensional systems. Uniqueness and existence of solutions. Offered in alternate years. *Prerequisite: MATH 53 or permission of instructor.* (5 units)

165. Linear Programming

Algebraic background. Transportation problem. General simplex methods. Linear programming and theory of games. Numerical methods. Offered in alternate years. *Also listed as CSCI 165.* (5 units)

166. Numerical Analysis

Numerical algorithms and techniques for solving mathematical problems. Linear systems, integration, approximation of functions, solution of nonlinear equations. Analysis of errors involved in the various methods. Direct methods and iterative methods. *Also listed as CSCI 166. Prerequisites: The ability to program in some scientific language, and MATH 53, or permission of the instructor.* (5 units)

170. Development of Mathematics

A selection of mathematical concepts with their historical context. Offered in alternate years. *Prerequisite: Upper-division standing in a science major.* (5 units)

172. Problem Solving

Use of induction, analogy, and other techniques in solving mathematical problems. Offered in alternate years. (5 units)

174. Differential Geometry

Introduction to curves and surfaces. Frenet-Serret formulas, Gauss' Theorema Egregium, Gauss-Bonnet theorem (as time permits). Offered in alternate years. *Prerequisite: MATH 53.* (5 units)

175. Theory of Numbers

Fundamental theorems on divisibility, primes, congruences. Number theoretic functions. Diophantine equations. Quadratic residues. Offered in alternate years. *Prerequisite: MATH 52.* (5 units)

176. Combinatorics

Permutations and combinations, generating functions, recursion relations, inclusion-exclusion, Pólya counting theorem, and a selection of topics from combinatorial geometry, graph enumeration, and algebraic combinatorics. (5 units)

177. Graph Theory

Selected topics from planarity, connectedness, trees (enumeration), digraphs, graph algorithms, and networks. Offered in alternate years. (5 units)

178. Cryptography

History, classical cryptosystems, stream ciphers, AES, RSA, discrete log over finite fields and elliptic curves, stream ciphers, and signatures. Offered in alternate years. (5 units)

190. Upper-Division Seminars

Advanced topics in algebra, geometry, or analysis. Research projects. May be repeated for credit. (1–5 units)

192. Undergraduate Research

Research project supervised by a faculty member in the department. *Prerequisite: Permission of the professor directing the research must be secured before registering for this course.* (1–5 units)

197. Advanced Topics

Areas of mathematics not ordinarily covered in regularly scheduled courses, often areas of current interest. May be repeated for credit. (5 units)

198. Internship/Practicum

Guided study related to off-campus practical work experience in mathematics or statistics. Enrollment restricted to majors or minors of the department. *Prerequisite: Approval of a faculty sponsor.* (1–5 units)

199. Independent Study

Reading and investigation for superior students under the direction of a staff member. This can be used only to extend, not to duplicate, the content of other courses. May be repeated for credit. (1–5 units)

LOWER-DIVISION COURSES: COMPUTER SCIENCE

3. Introduction to Computing and Applications

An overview course providing multiple perspectives on computing. Students will learn the structures of computer programming without writing code, gain high-level understanding of important computing systems such as the Internet and databases, and discuss the impact of technology on society. (4 units)

10. Introduction to Computer Science

Introduction to computer science and programming: overview of hardware and software organization; structured programming techniques using C++; elementary algorithms and data structures; abstract data types; the ethical and societal dimensions of computers and technology. Primarily (but not exclusively) for majors in computer science, mathematics, and physical sciences. CSCI 10 may not be taken for credit if the student has received credit for COEN 10 or a similar introductory programming course. *Prerequisite: MATH 11 (may be taken concurrently).* (4 units)

60. Object-Oriented Programming

Object-oriented programming techniques using C++: abstract data types and objects; encapsulation; inheritance; polymorphism; the Standard Template Library; the five phases of software development (specification, design, implementation, analysis, and testing). *Prerequisite: CSCI 10 or an equivalent introductory course in a scientific language.* (4 units)

61. Data Structures

Specification, implementations, and analysis of basic data structures (stacks, queues, graphs, hash tables, binary trees) and their applications in sorting and searching algorithms. *Prerequisite: CSCI 60. CSCI 61 and COEN 12 cannot both be taken for credit.* (4 units)

90. Lower-Division Seminars

Basic techniques of problem solving. Topics in computer science. (1–4 units)

UPPER-DIVISION COURSES: COMPUTER SCIENCE

Note: Although CSCI 10 is not explicitly listed as a formal prerequisite, some upper-division courses suggested for computer science (mathematics) majors may presuppose the ability to write computer programs in some language. A number of upper-division courses do not have specific prerequisites. Students planning to enroll should be aware, however, that all upper-division courses in computer science require some level of maturity in computer science and mathematics. Those without a reasonable background in lower-division courses are advised to check with instructors before enrolling.

161. Theory of Automata and Languages I

Classification of automata, formal languages, and grammars. Chomsky hierarchy. Representation of automata and grammars, BNF. Deterministic and nondeterministic finite state automata. Regular expressions and languages. Push-down automata. Context-free languages. Context-sensitive grammars and linear bounded automata. Recursively enumerable languages. Turing machines; normal forms; undecidability. Offered in alternate years. *Prerequisites: MATH 52 and CSCI 61 or equivalent.* (5 units)

162. Theory of Automata and Languages II

Continuation of CSCI 161. Offered on demand. *Prerequisite: CSCI 161.* (5 units)

163. Theory of Algorithms

Introduction to techniques of design and analysis of algorithms: asymptotic notations and running times of recursive algorithms; design strategies: brute-force, divide and conquer, decrease and conquer, transform and conquer, dynamic programming, greedy technique. Intractability: P and NP, approximation algorithms. *Also listed as COEN 179. Prerequisites: MATH 51 or 52, or equivalent, and CSCI 61 or equivalent.* (5 units)

164. Computer Simulation

Techniques for generation of probability distributions. Monte Carlo methods for physical systems. Applications of computer models, for example, queuing, scheduling, simulation of physical or human systems. Offered in alternate years. *Prerequisite: The ability to program in some scientific language. MATH 122 recommended but not required.* (5 units) NCX

165. Linear Programming

Algebraic background. Transportation problem. General simplex methods. Linear programming and theory of games. Numerical methods. Offered in alternate years. *Also listed as MATH 165.* (5 units)

166. Numerical Analysis

Numerical algorithms and techniques for solving mathematical problems. Linear systems, integration, approximation of functions, solution of nonlinear equations. Analysis of errors involved in the various methods. Direct methods and iterative methods. *Also listed as MATH 166. Prerequisites: The ability to program in some scientific language, and MATH 53 or permission of the instructor.* (5 units)

167. Switching Theory and Boolean Algebra

Switching algebra and Boolean algebra. Minimization via Karnaugh maps and Quine-McCluskey, state compatibility, and equivalence. Machine minimization. Faults. State identification, finite memory, definiteness, information losslessness. Offered on demand. (5 units)

168. Computer Graphics

Systematic and comprehensive overview of interactive computer graphics, such as mathematical techniques for picture transformations and curve and surface approximations. Offered in alternate years. *Prerequisite: The ability to program in some scientific language. MATH 53 recommended but not required.* (5 units)

169. Programming Languages

Comparative study of major classes of programming languages. Introduction to theoretical definitions of languages and run-time concerns, with emphasis on good points and deficiencies of various languages and on using the appropriate language for a given task. Programs written in several languages (e.g., LISP, FORTRAN-2003, C, C++, MPI). Offered in alternate years. (5 units)

181. Applied Cryptography

Key management, hash functions, stream ciphers, web of trust, time stamping, secret sharing, quantum cryptography, running time analysis, cryptanalytic techniques. Offered in alternate years. *Prerequisite: MATH 178.* (5 units)

182. Digital Steganography

History and applications. Techniques: substitution, transform domain, distortion, statistical, cover. Evaluation: benchmarking, statistical analysis. Attacks: distortion, counterfeiting, detection. Theory: perfect and computational security. Offered on demand. (5 units)

183. Data Science

Data manipulation, analysis, and visualization. Statistical modeling, dimension reduction and techniques of supervised and unsupervised learning. Big data software technologies. *Prerequisites: The ability to program in some scientific language and MATH 122, or permission of the instructor.* (5 units)

190. Upper-Division Seminars

Advanced topics in computer science. Research projects. May be repeated for credit. (1–5 units)

192. Undergraduate Research

Research project supervised by a faculty member in the department. *Permission of the professor directing the research must be secured before registering for this course.* (1–5 units)

197. Advanced Topics

Areas of computer science not ordinarily covered in regularly scheduled courses, often areas of current interest. May be repeated for credit. (5 units)

198. Internship/Practicum

Guided study related to off-campus practical work experience in computer science. Enrollment restricted to majors or minors of the department. *Prerequisite: Approval of a faculty sponsor.* (1–5 units)

199. Independent Study

Reading and investigation for superior students under the direction of a faculty member. This can be used only to extend, not to duplicate, the content of other courses. May be repeated for credit. (1–5 units)

DEPARTMENT OF MODERN LANGUAGES AND LITERATURES

Professor Emeritus: Francisco Jiménez
Professors: Rose Marie Beebe, Catherine R. Montfort
Associate Professors: Jimia Boutouba, Josef Hellebrandt, Jill Pellettieri (*Department Chair*), Tonia Caterina Riviello, Gudrun Tabbert-Jones
Assistant Professor: Alberto Ribas-Casasayas
Senior Lecturers: Irene Bubula-Phillips, Gloria Elsa Li, Lucia Varona
Lecturers: Maria Bauluz, Marie Bertola, Lucile Couplan-Cashman, Stephanie Daffer, Yujie Ge, Jennifer Lisses, Yoshiko Miyakoshi, Irena Stefanova, Nina Tanti

The Department of Modern Languages and Literatures offers courses in Arabic, Chinese, French, German, Italian, Japanese, and Spanish, as well as degree programs leading to the bachelor of arts in French and Francophone Studies, German Studies, Italian Studies, or Spanish Studies. Honors programs are available for French and German majors. In addition, the department offers minors in French and Francophone studies, German studies, Italian studies, Japanese studies, and Spanish studies. The courses are designed to help students achieve proficiency in both the oral and written language and to provide them with an understanding of the experiences, values, and traditions of those peoples whose languages are studied. Courses range from beginning language to linguistics, from an introduction to literary texts to advanced courses in literature and culture. All courses are open to any student with the requisite preparation.

A few courses in literature and culture offered by the department are taught in English and are open to all students. Some of these courses may be used as credit toward a major or minor in French and Francophone studies, a major or minor in German studies, or a minor in Japanese studies. However, these courses in English will not fulfill the Undergraduate Core Curriculum foreign language requirement. Students may fulfill their second language Core Curriculum requirement by successfully completing a proficiency examination in a modern foreign language at the level for their program of study.

Students who have never studied the language in which they wish to enroll, or who have studied that language for one year in high school, should register for Elementary Language 1. Those who wish to continue in a language that they have studied for two years in high school should enter Elementary Language 2. Students with three or more years of study in a single language, those who wish to continue language study beyond the second language requirement, or those who feel following the formula would place them in a higher- or lower-level course than their background warrants should consult a member of the appropriate language faculty for placement advice. Students having the necessary proficiency, as demonstrated by an interview with a member of the language faculty, may enroll in higher-numbered courses than those of the placement formula. Once proficiency has been established, lower-division students may enroll in upper-division courses with the permission of the instructor. Such courses will be counted as fulfilling major or minor requirements.

Courses numbered 1 through 102 are not open to challenge; for courses numbered above 102, consult the individual listing. For more information about placement and/or proficiency, please visit the department's website. Study abroad is a valuable enhancement of the undergraduate experience and is particularly recommended for students pursuing a major or minor in a foreign language. Both the Office of International Programs and the student's foreign language advisor should be consulted to ensure appropriate integration of the work done abroad into the student's program of study.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of arts degree, students majoring in modern languages and literatures must complete the following departmental requirements for their specific major:

Major in French and Francophone Studies

- FREN 100 and 101, or department-approved substitutes
- At least one course in French or Francophone literature
- Remaining electives in French or Francophone studies to total 40 quarter upper-division units chosen with the approval of the student's major advisor. At least 20 of these units must be taken at SCU or taught by SCU faculty.

Major in German Studies

- GERM 100 and 101, or department-approved substitutes
- Remaining electives in German language, literature, and culture to total 40 quarter upper-division units. At least 20 of these units must be taken at SCU or taught by SCU faculty.

Major in Italian Studies

- ITAL 100 and 101, or department-approved substitutes
- Remaining electives in Italian language and literature to total 40 quarter upper-division units, chosen with the student's faculty advisor. At least 20 of these units must be taken at SCU or taught by SCU faculty.

Major in Spanish Studies

- SPAN 100 and 101, or department-approved substitutes
- SPAN 175
- At least one survey course (but not more than three) from SPAN 120, 121, 130, 131
- One course in Latin American literature or culture
- One course in Spanish Peninsular literature or culture
- Remaining electives in Spanish language, literature and culture to total 40 quarter units of upper-division work, chosen with the approval of the Spanish advisor. At least 20 of these units must be taken at SCU or taught by SCU faculty.

REQUIREMENTS FOR THE MINORS

Students must fulfill the following requirements for the specific minor in modern languages and literatures:

Minor in French and Francophone Studies

- FREN 100 and 101, or department-approved substitutes
- At least one course in French or Francophone literature
- Remaining electives to total at least 19 quarter units of upper-division work in French. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in German Studies

- GERM 100 and 101, or department-approved substitutes
- Remaining electives to total at least 19 quarter units of upper-division work in German. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in Italian Studies

- ITAL 100 and 101, or department-approved substitutes
- Remaining electives to total at least 19 quarter units of upper-division work in Italian. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in Japanese Studies

- JAPN 100, 101, and 102, or department-approved substitutes
- Remaining electives to total at least 19 quarter units of upper-division work in Japanese. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in Spanish Studies

- SPAN 100 and 101, or department-approved substitutes
- At least one course in Hispanic literature or culture
- Remaining electives to total at least 19 quarter units of upper-division work in Spanish. At least 10 of these units must be taken at SCU or taught by SCU faculty.

LOWER-DIVISION COURSES: ARABIC STUDIES

1. Elementary Arabic I

This course introduces students to Modern Standard Arabic (MSA) and the cultures of the Arabic-speaking world. Through the four basic skills of listening, speaking, reading, writing, as well as cultural knowledge, students will acquire basic knowledge and understanding in the writing system; sounds and pronunciation of Arabic letters; Arabic grammar; writing and reading basic sentences; and building a list of vocabulary in MSA and Colloquial Arabic. (4 units)

2. Elementary Arabic II

A continuation of Elementary Arabic 1 designed for students to acquire additional vocabulary, the rules of Arabic grammar, and reading more complex materials. MSA through Al-Kitaab series textbooks will be used to allow students to acquire additional knowledge and understanding in many areas of the Arabic language. Students in this course are exposed to authentic reading and listening materials that are of more depth and length than those used in Arabic 1. *Prerequisite: ARAB 1 or equivalent.* (4 units)

3. Elementary Arabic III

A continuation of Elementary Arabic II in which students will acquire additional vocabulary, a more advanced understanding of Arabic grammar, and will write and read more complex materials with comprehension of case system and sentence structure. MSA through Al-Kitaab series textbooks will be used to allow students to acquire additional knowledge and understanding in the structure of the Arabic language. Students in this course are exposed to authentic reading and listening materials through lectures, discussions, exercises, and communicative language activities. *Prerequisite: ARAB 2 or equivalent.* (4 units)

21. Intermediate Arabic I

Focuses on reading and discussion of texts dealing with the literature, arts, geography, history, and culture of the Arabic-speaking world. Review of the linguistic functions and grammar structures of first-year Arabic. The teaching/learning process in this level is proficiency-oriented where emphasis is placed on the functional usage of Arabic. *Prerequisite: ARAB 3 or equivalent.* (4 units)

22. Intermediate Arabic II

Continuation of Intermediate Arabic I with focus on building additional vocabulary, using Arabic-English dictionary, reading and discussion of Arabic texts dealing with the literature, arts, geography, history, and culture of the Arabic-speaking world. The teaching/learning process in this level is proficiency-oriented where emphasis is placed on the functional usage of Arabic. *Prerequisite: ARAB 21 or equivalent.* (4 units)

23. Intermediate Arabic III

Continuation of Intermediate Arabic II with focus on grammatical and linguistic structure in texts dealing with the literature, arts, geography, history, and culture of the Arabic-speaking world. The teaching/learning process in this level is proficiency-oriented where emphasis is placed on the functional usage of Arabic. *Prerequisite: ARAB 22 or equivalent.* (4 units)

50. Intermediate Arabic Conversation

This course focuses on the spoken Arabic dialect of the Levant (Lebanon, Syria, Jordan, and Palestine) as one of the major Arabic dialects spoken and understood in the Arab world. The course is a combination of lecture, discussion, exercises, and communicative language activities. It aims to develop conversational skills focusing on the use of topic-structured drills and activities that are appropriate to the context in which the language will be spoken. Representative examples of colloquial literature, plays, songs, and TV series will be introduced. Colloquial Arabic will be the primary language of instruction. (4 units)

UPPER-DIVISION COURSES: ARABIC STUDIES

137. Arabic Culture and Identity

This course will introduce the students to the major aspects of Arabic and Islamic culture in the context of the complex history of the Arabic world. It will include coverage of religious and ethnic diversity, language, the Arabic family structure, values traditions, and customs. Arabic literatures and poetry from the classical period to the present will be introduced. The Arabic visual and performing arts, music, food, and clothing will be covered. This course is open to all upper-division students who are interested in learning about Arabs and their culture. This course is taught in English; knowledge of Arabic is desirable but not required. Course does not fulfill University Core foreign language requirement. (5 units)

194. Peer Educator in Arabic

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LOWER-DIVISION COURSES: CHINESE STUDIES

1. Elementary Chinese I

Designed for those having no previous study of Mandarin Chinese. A proficiency-based course emphasizing communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Chinese culture. (4 units)

2. Elementary Chinese II

The second in a series of three courses, CHIN 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Chinese culture. *Prerequisite: CHIN 1, or two years of high school Chinese, or equivalent.* (4 units)

3. Elementary Chinese III

CHIN 3 completes first-year Chinese. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Chinese culture. *Prerequisite: CHIN 2 or equivalent.* (4 units)

21. Intermediate Chinese I

The first course in a three-part review of the fundamentals of spoken and written Mandarin Chinese. Progressive readings and exercises in conversation and composition. Development of an understanding of Chinese culture. *Prerequisite: CHIN 3 or equivalent.* (4 units)

22. Intermediate Chinese II

Continuation of the review of Chinese structure, together with progressive development of all Chinese skills. Broadening appreciation of Chinese culture through reading and discussion. *Prerequisite: CHIN 21 or equivalent.* (4 units)

23. Intermediate Chinese III

Completion of intermediate Chinese. *Prerequisite: CHIN 22 or equivalent.* (4 units)

UPPER-DIVISION COURSES: CHINESE STUDIES

100. Advanced Chinese I

This course is aimed at expanding the student's vocabulary in written and spoken Chinese, and developing the ability to comprehend and use complex grammatical structures with ease. Course conducted in Chinese. *Prerequisite: CHIN 23 or equivalent.* (5 units)

101. Advanced Chinese II

The second in a series of three courses, CHIN 101 is aimed at expanding vocabulary in written and spoken Chinese, and developing the ability to comprehend and use complex grammatical structures with ease. Course conducted in Chinese. *Prerequisite: CHIN 100 or equivalent.* (5 units)

102. Advanced Chinese III

This course completes the advanced Chinese series and is aimed at expanding the vocabulary in written and spoken Chinese and developing an ability to comprehend and use complex grammatical structures with ease. Course conducted in Chinese. *Prerequisite: CHIN 101 or equivalent.* (5 units)

127. Chinese History and Culture

This course introduces students to key aspects of China's history and culture. This course explores the legacies of various dynasties and significant historical events and figures in chronological order; and introduces traditional Chinese ideology, traditions and values, arts and crafts, folk customs, etc. Course conducted in Chinese. *Prerequisite: Two years of Chinese language or equivalent.* (5 units)

137. Modern Chinese Culture

This course introduces students to the culture in modern China through literature (fiction and other reading matter), popular music, and film with an emphasis on business etiquette and culture in China. All readings are in English. No Chinese language is required, though students with Chinese language background are encouraged to work with Chinese sources if they wish. This course does not fulfill the University Core foreign language requirement. *Prerequisite: None.* (5 units)

194. Peer Educator in Chinese

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

197. Special Topic

Variable topics in culture, literature, and film. May be retaken for credit. (5 units) NCX

198. Directed Study

Individually designed programs of advanced study. Restricted to seniors who find themselves in special circumstances (i.e., Asian Studies or International Studies minors). May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LOWER-DIVISION COURSES: FRENCH AND FRANCOPHONE STUDIES

1. Elementary French I

The first in a series of three courses, FREN 1 is intended for students who have had no prior experience with French. It emphasizes the development of communicative language skills and cultural understanding. This proficiency-based course follows the text Horizons and requires active performance in class. Offered only in Fall. Course conducted in French. *Prerequisite: None.* (4 units)

2. Elementary French II

The second in a series of three courses, FREN 2 continues the development of communicative language skills and cultural understanding acquired in FREN I. This proficiency-based course follows the text Horizons and requires active participation in class. Offered only in winter. Course conducted in French. *Prerequisite: FREN 1, or two years of high school French, or equivalent.* (4 units)

3. Elementary French III

This course completes the elementary French series. Like its preceding courses, FREN 3 emphasizes the development of communicative language skills and cultural understanding. This proficiency-based course follows the text Horizons and requires active performance in class. Offered only in spring. Course conducted in French. *Prerequisite: FREN 2 or equivalent.* (4 units)

21. Intermediate French I

The first of two courses reviewing the fundamentals of spoken and written French. Readings in original prose, with an appreciation of French and Francophone cultures. Requires participation in a one-hour conversation group once a week. Offered only in fall. *Prerequisite: FREN 3 or equivalent. Course conducted in French.* (4 units)

22. Intermediate French II

Continuation of the review of the fundamentals of spoken and written French. Further appreciation of French and Francophone cultures through readings and discussions. Requires participation in a one-hour conversation group once a week. Offered only in winter. Course conducted in French. *Prerequisite: FREN 21 or equivalent.* (4 units)

50. Intermediate French Conversation

A course concentrating on development of a student's ability to speak and understand various French accents. Film viewing each week. Recommended for students going abroad. Course includes French-speaking field trips and discussions with French visitors. No auditors. *Prerequisite: FREN 22 or equivalent.* (4 units)

UPPER-DIVISION COURSES: FRENCH AND FRANCOPHONE STUDIES

100. Advanced French I

This course provides students with a systematic review of the fundamental structures of French grammar and emphasizes the development of oral communication, cultural literacy and analytic skills through different genres of cultural expression. In this course, students will gain a deeper insight into French thought, history and culture. An essential course for studying abroad. Course conducted in French. *Prerequisite: FREN 22 or equivalent.* (5 units) NCX

101. Advanced French II

Introduction to literary analysis in poetry, prose, and drama. Required of all majors and minors. (May be taken concurrently with certain other upper-division courses.) Course conducted in French. *Prerequisite: FREN 100 or equivalent.* (5 units)

102. Advanced French III

Variable topics in specific fields. (Studies abroad; units vary based on program)

103. Advanced French Composition

Development of concrete writing skills for a variety of writing tasks, such as "explication de textes," "compte-rendu critique," and "essai argumentatif." The correct use of syntax and lexicon, as well as the progression of ideas will be stressed. Continuous writing assignments based on readings and a final essay are required. Course conducted in French. *Prerequisite: FREN 100 or equivalent.* (5 units)

104. French Translation

The theory and practice of translation from French to English, and from English to French. Course conducted in French. *Prerequisite: FREN 100 or equivalent.* (5 units)

106. Advanced French Conversation

Recommended for students who will study or work in France. Intensive oral work stressing self-expression and discussion skills. Topics will be chosen from contemporary readings and cross-cultural comparisons will be made with American society. No auditors. *Prerequisite: FREN 100 or equivalent and permission of the instructor. Limited to 12 students.* (5 units)

108. French Business Culture and Institutions

Basic French business terminology and practices. Business letter writing emphasized. Examination of French business institutions (agriculture, finance, advertising, transportation, etc.). Special emphasis on understanding the underlying cultural mores that make French business different from U.S. business. Course conducted in French. (5 units)

110. Introduction to French Culture and Civilization

Cultural, political, economic, artistic, educational, and social aspects of France. Course conducted in French. (5 units)

111. Introduction to Francophone Studies

Cultural, political, economic, educational, and social aspects of the Francophone world. Exploration through literary works and films of issues involving nationalism, race, gender, identity, and alienation. Geographic areas include the Caribbean, North Africa, sub-Saharan Africa, and Vietnam. Course conducted in French. (5 units)

113. Black African/Caribbean Women Writers

An introduction to literature written by black African/Caribbean women writers. Through literature (interviews, personal testimonies, novels, autobiography) and film (documentaries, movies), students will witness the changing faces of black Africa, from colonial times to the present, as seen through the eyes of women. Course conducted in French. *Also listed as WGST 123.* (5 units)

114. Literatures and Cultures of the Maghreb

This course focuses on works by Francophone writers and filmmakers from North Africa (Morocco, Tunisia, Algeria). We shall examine the historical and aesthetic evolution of this literary and filmic production, and how it reflects on the colonial past and the postcolonial condition. Other topics include the way these writers and filmmakers seek to construct identities in the wake of profound cultural changes brought about by colonization, decolonization, immigration, and globalization, and how they expose the power conflicts along the lines of class, gender, race, ethnicity, and national belonging. Attention will also be devoted to the discursive strategies and filmmaking practices that they elaborate to address these issues in a resistant, subversive, and direct criticism. Course conducted in French. (5 units)

115. Major Works of French Literature I

Readings in French literature from its beginnings in the Moyen Age to the end of the 18th century. Rotated topics include the theme of love, the comic, the writer's relationship to societies, the emerging genre of the theatre, etc. Course conducted in French. (5 units)

116. Major Works of French Literature II

Readings in French literature of the 19th and 20th centuries. Rotated topics include drama, the novel, literature and the arts, experimentation (literary and dramatic), etc. Course conducted in French. May be taken independently of FREN 115. (5 units)

117. French Orientalism: Representation of Otherness in Literature, Cinema, and Visual Arts

This course examines differing constructions of the Oriental "Other" as it took shape in French literary and non-literary representations from the 18th to the 21st century. We will analyze how politics and ideology inform the construction and reproduction of knowledge about the "Other" as well as the complex interactions between race, ethnicity, gender, sexuality, exoticism, and the various subject-object positions occupied by the observer, traveler, writer/voyeur. We will also analyze how these French writers, painters, photographers, travelers, and filmmakers have used alterity as a mirror for self-reflection, as a tool to critique sociopolitical practices, and as the locus of a threat to cultural homogeneity and national identity. This course will engage theories of Orientalism, identity and difference, and colonialism and postcolonialism. Selected literary texts, paintings and films include works by Montesquieu, Pierre Loti, Théophile Gautier, Flaubert, Delacroix, Matisse, Albert Camus, Allegret, and Coline Serreau. (5 units)

120. Moyen Age

Epic, lyric, and courtly literature of medieval France: Roland, l'amour courtois and the Troubadours, Chrétien de Troyes, Tristan et Iseut, Artur, the early theatre. Course conducted in French. (5 units)

130. Humanism and the Renaissance

La Renaissance: readings in Rabelais, the Pléiade poets, and Montaigne. Course conducted in French. (5 units)

140. Le Grand Siècle: Theatre in the Age of Louis XIV

Stress on classical tragedy and comedy in France, with special emphasis on the social and political context in which these genres were produced. Additional materials will be drawn from other writers of the 17th century such as Descartes, Pascal, Mme de La Fayette, and La Fontaine. Course conducted in French. (5 units) NCX

150. The French Enlightenment

Exploration of the major philosophical, literary, and artistic movements in France between the years 1715 (Louis XIV's death) and 1789 (the French Revolution), with an emphasis on their uneasy relationship to the social, political, and religious institutions of pre-revolutionary France. Texts by Montesquieu, Voltaire, Mme de Charrière, Mme de Graffigny, Rousseau, and others. Course conducted in French. (5 units)

160. 19th Century I: Romantic and Romantique

Romantic literature: prose and poetry (Chateaubriand, Stendhal, Lamartine, Hugo, Balzac, Vigny, etc.). Course conducted in French. (5 units)

161. 19th Century II: Le réel et le symbolique

Realist, naturalist, and symbolist literature (Baudelaire, Flaubert, Mallarmé, etc.). Course conducted in French. (5 units)

170. 20th Century I: Mémoires et Souvenirs

Writings of la belle époque and entre deux guerres (Proust, Gide, Apollinaire, Dada, surrealism, etc.). Course conducted in French. (5 units)

171. 20th Century II: The Existentialist Hero

The engagée literature, the anti-theatre, the new novel, and current directions (Anouilh, Sartre, Camus, Ionesco, Robbe-Grillet, Tournier, etc.). Course conducted in French. (5 units)

172. Cinéma

An examination of the evolution of style and theme in French cinema from its birth in 1895 to the present. Study of films by major directors (Renoir, Pagnol, Cocteau, Truffaut, Malle, Beineix, Diane Kurys). Main themes of French culture illustrated in the films. Course conducted in French. (5 units)

173. Immigration, Race, and Identity in Contemporary France

This course explores the experience of immigrants and their children to France as portrayed by authors and filmmakers from different origins. It centers on the historical and political circumstances that form the context of this artistic production and examines the theoretical problems involved in analyzing questions of immigration, marginalization, race, gender, ethnicity, and national identity in France. Course conducted in French. *Prerequisite: FREN 101 or equivalent.* (5 units)

182. Women in French Literature: Authors and Characters

Literary analysis of the woman question formulated through the works of important French writers, both female and male, from the Middle Ages to the 21st century. Provides information on French women writers' contributions with, as background, information on French women's roles and experiences throughout the ages. Special attention will be given to the continuity among women writers and to the impact of their minority status upon their writing. Readings set against the backdrop of the Monarchy, the French Revolution of 1789, the Napoleonic regime, the Franco-Prussian war, and the two World Wars will point out to an emerging feminist awareness that found expression in both literature and political activism. Course conducted in French. *Also listed as WGST 176.* (5 units)

183. 20th- and 21st-Century French Women Writers

The varied literary contributions of French and Francophone writers such as Colette, Simone de Beauvoir, Marguerite Duras, Elisabeth Badinter, Gabrielle Roy, Mariama Bâ; their differing perceptions of the traditional stereotypes of women and perspectives related to social class. Consideration of whether feminine literature has unique qualities. Course conducted in French. *Also listed as WGST 177.* (5 units)

185. French Applied Linguistics

Aspects of modern French linguistics (phonology, phonetics, morphology, syntax). Contrastive analysis. Course conducted in French. (5 units) NCX

186. Politics of Love

Students will focus on the theme of love (from Tristan and Iseult's passionate love to the modern concept of love and marriage) and study how different literary movements have adapted love stories to reflect their values and their visions of the world. Why do these cultural representations and social constructions of the gendered human body and sexuality often show off the social insertion of the hero and the exclusion of feminine characters? In other words, what are the social, sexual, political consequences of the power games present in the love stories read this quarter? Course conducted in French. (5 units)

194. Peer Educator in French

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

197. Special Topics

Variable topics in culture, literature, and film. May be retaken for credit. (5 units) NCX

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared French and Francophone studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LITERATURE AND CULTURE IN TRANSLATION

Note: The following three courses are literature and culture in translation courses taught in English and cannot be used to fulfill the Undergraduate Core Curriculum second language requirement. One course may be counted toward the French and Francophone studies major or minor.

112. Human Rights in France, Black Africa, and the Caribbean

Provides a framework on France and its colonial empire and presents important male writings during the colonial period, and deals with texts written by women writers in a recent past. Focuses on cultural identity and human rights, yet special attention will be given to the ways in which self-representation is achieved by the female writing subject. Conducted in English but contains a French component for French and Francophone studies majors and minors. (5 units)

174. French and Francophone French Novels and Films: Culture, Gender, and Social Classes

Covers both classic French and Francophone novels (including novels from black Africa, the Caribbean, and Vietnam), and films based on the same texts. The goals are (1) to introduce students to French and Francophone culture through analysis of significant texts and through the lens of films, and (2) to develop critical skills of interpretation applicable to all disciplines. Conducted in English but contains a French component for French and Francophone studies majors and minors. *Also listed as WGST 175.* (5 units)

184. 20th-Century French Women Writers in Translation

The varied literary contributions of French and Francophone writers. Readings selected mainly from writers of the second half of the 20th century. Consideration of whether feminine literature has unique qualities. Conducted in English but contains a French component for French and Francophone studies majors and minors. *Also listed as WGST 178.* (5 units)

LOWER-DIVISION COURSES: GERMAN STUDIES

1. Elementary German I

Designed for those having no previous study of German. A proficiency-based course emphasizing communicative language skills (understanding, speaking, reading, and writing). Cultural information on German-speaking countries. (4 units)

2. Elementary German II

The second in a series of three courses, GERM 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of the cultures of German-speaking countries. *Prerequisite: GERM 1, or two years of high school German, or equivalent.* (4 units)

3. Elementary German III

GERM 3 completes first-year German. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of German-speaking countries. *Prerequisite: GERM 2 or equivalent.* (4 units)

5. German for Reading Knowledge

Alternate to GERM 3 leading to the reading of scholarly articles in various fields of study. *Prerequisite: GERM 2 or equivalent.* (4 units)

21. Intermediate German I

Review of German grammar, short stories, or essays on culture and civilization. Progressive exercises in conversation. *Prerequisite: GERM 3 or 5 or equivalent.* (4 units)

22. Intermediate German II

Continuation of GERM 21. Accelerated readings, conversation, and writing. (4 units)

UPPER-DIVISION COURSES: GERMAN STUDIES

100. Advanced German I

Advanced reading, composition, and conversation. Emphasis on conversation and career-oriented language. Required of all minors. *Prerequisite: GERM 22 or equivalent.* (5 units)

101. Advanced German II

Reading of literary texts, composition, and discussion. Required of all minors. Completion or equivalent knowledge admits students to higher-numbered courses. *Prerequisite: GERM 100 or equivalent.* (5 units)

106. Advanced German Conversation

Advanced work stressing the development of self-expression in German. *Prerequisite: GERM 22 or equivalent.* (5 units)

108. German Business Culture and Institutions

Introduction to the language of business German. Insights into Germany's place in the global economy. The topics, language, and skill-building exercises offer an excellent preparation for students who, after two years of college-level German, plan to pursue careers in international companies and institutions. At the same time, the materials are appropriate for German majors or minors who want to gain insight into contemporary German culture and civilization. (5 units)

110. History of German Civilization

Cultural history of the German-speaking countries from earliest times to 1945. *Prerequisite: GERM 100 or equivalent.* (5 units)

111. Contemporary German Civilization

Geography, culture, education, politics, and the economy in the German-speaking countries since 1945. *Prerequisite: GERM 100 or equivalent.* (5 units)

112. Germany in the Media

How do Germans and Americans view Germany? This course highlights the role of the media in portraying Germany's image inside and outside of Germany. It examines how print and electronic media in both countries present selected themes and topics in the following categories: arts, economy, education, politics, and the sciences; and how the media shape public opinion about Germany. (5 units)

113. German Film: From Fassbinder to Faith Akin

This course introduces students to German cinema from the 1970s to the present. Through films such as *The Marriage of Maria Braun*, *Run Lola Run*, *Nowhere in Africa*, *Good Bye, Lenin!*, and *Gegen die Wand*, students gain insights into the cultural, social, and political history of modern Germany. *Prerequisite: GERM 22 or equivalent.* (5 units)

130. The Classical Age

Major works by Goethe and Schiller. (5 units)

140. 19th-Century Romanticism

Philosophy of the Romantics. German fairy tale. Selected works by Kleist, Eichendorff, Heine, and Wagner. (5 units)

141. 19th-Century Realism

Works by Büchner, Hebbel, Fontane, Marx, and Hauptmann. (5 units)

150. 20th-Century Novel

Works by Kafka, Hesse, Thomas Mann, Christa Wolf, Böll, and others. (5 units)

151. 20th-Century Drama

Plays by Brecht, Borchert, Frisch, and Dürrenmatt, and Brecht's theoretical writings. (5 units)

160. The German Novelle

Characteristic features of the Novelle as opposed to Roman and Erzählung. Examples from Theodor Storm to Thomas Mann. (5 units)

161. Survey of Lyric Poetry

Introduction to the analysis of poetry. Numerous examples from all German literary periods beginning with 1600. (5 units)

174. German Novels and Films

Various topics will be covered. (5 units)

182. Women in German Literature: Authors and Characters

Works by and about German women. Authors studied include Droste-Hulshof, Böll, Wolf, Handke, Kaschnitz, Wander, and others. *Also listed as WGST 179.* (5 units)

183. 20th-Century German Women Authors and Artists

A selection from contributions by German women writers and film producers from the second half of the 20th century. (5 units)

194. Peer Educator in German

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

197. Special Topics

Variable topics in culture and literature. May be retaken for credit. (5 units) NCX

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared German studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units) NCX

LITERATURE IN TRANSLATION

Note: Literature in translation courses are taught in English and cannot be used to fulfill the second language requirement. One course may be counted toward the German studies minor.

115. German Literature in English Translation

Reading and analysis of masterpieces of German literature written between 1750 and 1970. Selection dependent upon available translations. (5 units) NCX

LOWER-DIVISION COURSES: ITALIAN STUDIES

1. Elementary Italian I

Designed for those having no previous study of Italian. A proficiency-based course emphasizing the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Italian culture. (4 units)

2. Elementary Italian II

The second in a series of three courses, ITAL 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Italian culture. *Prerequisite: ITAL 1, or two years of high school Italian, or equivalent.* (4 units)

3. Elementary Italian III

ITAL 3 completes first-year Italian. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Italian culture. *Prerequisite: ITAL 2 or equivalent.* (4 units)

21. Intermediate Italian I

Review of fundamentals of spoken and written Italian. Progressive readings reflecting Italian culture and values. Progressive exercises in conversation and composition. *Prerequisite: ITAL 3 or equivalent.* (4 units)

22. Intermediate Italian II

Continuation of ITAL 21. *Prerequisite: ITAL 21 or equivalent.* (4 units)

UPPER-DIVISION COURSES: ITALIAN STUDIES

100. Advanced Italian I

Composition, reading, and conversation. Required of all majors and minors. *Prerequisite: ITAL 22.* (5 units)

101. Advanced Italian II

Continuation of ITAL 100. Required of all majors and minors. *Prerequisite: ITAL 100 or equivalent.* (5 units)

102. Advanced Italian III

This course is designed to further develop students' proficiency in listening, speaking, reading, and writing at an advanced level, and to deepen cultural perspectives on the Italian-speaking world. This course includes advanced composition and communication, grammar review, and analysis of literary texts, media, and cinema. *Prerequisite: ITAL 101 or equivalent.* (5 units)

106. Advanced Italian Conversation

Advanced work stressing the development of self-expression in Italian. *Prerequisites: ITAL 101 or equivalent, and permission of the instructor.* (5 units) NCX

110. Italian Civilization I

Fundamental aspects of Italian history, art, and culture from their origins to the Seicento. *Prerequisite: ITAL 101 or equivalent.* (5 units) NCX

111. Italian Civilization II

Continuation of ITAL 110. May be taken independently. From the Settecento to the present. *Prerequisite: ITAL 101 or equivalent.* (5 units)

113. Cinema e Cultura

A cultural portrait of modern Italy as reflected in its cinema. Films by Roberto Rossellini, Luchino Visconti, Vittorio De Sica, Michelangelo Antonioni, Federico Fellini, Francesco Rosi, Bernardo Bertolucci, Massimo Troisi, Ettore Scola, Mario Monicelli, and Marco Bellocchio illustrate cultural and intellectual change in the 20th century. *Prerequisite: ITAL 101 or equivalent.* (5 units)

120. Survey of Italian Literature I

From its origin to the Seicento. *Prerequisite: ITAL 101 or equivalent.* (5 units)

121. Survey of Italian Literature II

From the Settecento to the present. *Prerequisite: ITAL 101 or equivalent.* (5 units)

125. Colloquium: Italian Literature and Culture

Topic varies. Study and discussion of selected themes in Italian literature and culture. May be retaken for credit. *Prerequisite: ITAL 101 or equivalent.* (5 units) NCX

130. Dante, La Divina Commedia I

Inferno and Purgatorio. *Prerequisite: ITAL 101 or equivalent.* (5 units)

131. Dante, La Divina Commedia II

Purgatorio and Paradiso. *Prerequisite: ITAL 101 or equivalent.* (5 units)

140. Duecento, Trecento

Emphasis on Dante's minor works, Petrarch's poetry, and Boccaccio's Decameron. *Prerequisite: ITAL 101 or equivalent.* (5 units)

150. Quattrocento, Cinquecento (Rinascimento)

Important trends in the literary masterpieces of the Renaissance. Significant works of Ariosto, Tasso, Leonardo, Machiavelli, Lorenzo de Medici, Poliziano, Castiglione. *Prerequisite: ITAL 101 or equivalent.* (5 units)

160. Settecento

Salient works of Vico, Goldoni, Parini, and Alfieri. *Prerequisite: ITAL 101 or equivalent.* (5 units)

170. Ottocento, I Promessi Sposi

Discussion of the works of Foscolo, Leopardi, Manzoni's poetry. Carducci, Pascoli, and Verga. *Prerequisite: ITAL 101 or equivalent.* (5 units)

180. Novecento Italian Literature of the 20th Century

Main trends in poetry, drama, and the novel from Pirandello to the present. *Prerequisite: ITAL 101 or equivalent.* (5 units)

182. 20th-Century Italian Women Writers

Critical analysis of major works by leading women writers and the changing role of women in 20th-century Italian society: Grazia Deledda, Sibilla Aleramo, Elsa Morante, Natalia Ginzburg, Maria Bellonci, Laudomia Bonanni, Lalla Romano, Milena Milani, Francesca Sanvitale, Romana Petri, Isabella Bossi Fedrigotti, and Gina Lagorio. *Prerequisite: ITAL 101 or equivalent. Also listed as WGST 185.* (5 units)

183. Women in Italian Cinema: The Impact of Globalization

Focus is on the films with a global viewpoint of numerous Italian film directors. Examination of Italian masterpieces (including black-and-white films of the 40s and 50s) with special focus on the changing aspects of global society and their impact on individuals, especially women. Films by women directors whose work may give a contrasting vision of globalization and its enabling and challenging aspects. *Prerequisite: ITAL 101 or equivalent.* (5 units)

194. Peer Educator in Italian

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

197. Special Topics

Variable topics in culture, literature, and film. May be retaken for credit. (5 units) NCX

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared Italian studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration. Prerequisite: ITAL 101 or equivalent.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. For seniors only. *Written permission of the instructor and department chair is required in advance of registration. Prerequisite: ITAL 101 or equivalent.* (1–5 units)

LOWER-DIVISION COURSES: JAPANESE STUDIES

1. Elementary Japanese I

Designed for those having no previous study of Japanese. A proficiency-based course emphasizing the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Japanese culture. (4 units)

2. Elementary Japanese II

Continuation of JAPN 1. An oral teaching approach is taken to further develop proficiency in comprehending and using elementary vocabulary and grammatical structures. Some ability to write Hiragana and Katakana is expected. Students will begin reading texts in Japanese and learning Chinese characters (kanji). We will learn 56 new kanji. Pertinent aspects of Japanese culture are also discussed. *Prerequisite: JAPN 1 or equivalent.* (4 units)

3. Elementary Japanese III

This class continues instruction in basic communication skills in Japanese. An oral teaching approach is taken to develop proficiency in comprehending and using elementary vocabulary and grammatical structures. New Chinese characters continue to be introduced, and reading and writing practiced. *Prerequisite: JAPN 2 or equivalent.* (4 units)

21. Intermediate Japanese I

New grammatical structures and additional written characters. Progressive exercises to develop facility in conversation, reading, and composition. *Prerequisite: JAPN 3 or equivalent.* (4 units)

22. Intermediate Japanese II

Continuation of JAPN 21. *Prerequisite: JAPN 21 or equivalent.* (4 units)

23. Intermediate Japanese III

Completion of intermediate Japanese. *Prerequisite: JAPN 22 or equivalent.* (4 units)

UPPER-DIVISION COURSES: JAPANESE STUDIES

100. Advanced Japanese I

Continued practice in using complex grammatical structures. Reading and discussion of topics taken from a variety of sources. *Prerequisite: JAPN 23 or equivalent.* (5 units)

101. Advanced Japanese II

Continuation of JAPN 100. *Prerequisite: JAPN 100 or equivalent.* (5 units)

102. Advanced Japanese III

Completion of advanced Japanese. *Prerequisite: JAPN 101 or equivalent.* (5 units)

113. Readings in Japanese I

Readings and discussions in Japanese of selected sociological, literary, and journalistic texts. *Prerequisite: JAPN 102 or equivalent.* (5 units)

114. Readings in Japanese II

Continuation of JAPN 113. *Prerequisite: JAPN 113 or equivalent.* (5 units)

115. Readings in Japanese III

Completion of readings in Japanese. *Prerequisite: JAPN 114 or equivalent.* (5 units)

194. Peer Educator in Japanese

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared Japanese studies minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of instructor and department chair required in advance of registration.* (1–5 units) NCX

LITERATURE AND CULTURE TAUGHT IN ENGLISH

Note: The following course is a literature and culture course taught in English and cannot be used to fulfill the Undergraduate Core Curriculum second language requirement. One course (5 units) may be counted toward the Japanese studies minor.

137. Japanese Culture

An introduction to Japanese customs, values, and communication styles. Japanese customs will include basic protocol for getting to know Japanese people, the tea ceremony, flower arrangement, and Japanese cooking. Japanese values will concentrate on such key concepts as seniority rules, the virtue of modesty, private versus public stance, Bushido (the way of the warrior), arranged marriage, and child-rearing practices. Japanese communication will focus on ambiguity, silence, dual meanings of inner and outer groups, and calligraphy. *Prerequisite: None.* (5 units)

LOWER-DIVISION COURSES: SPANISH STUDIES

1. Elementary Spanish I

Designed for those having no previous study of Spanish. A proficiency-based course emphasizing the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Hispanic culture. (4 units)

2. Elementary Spanish II

The second in a series of three courses, SPAN 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Hispanic culture. *Prerequisite: SPAN 1, or two years of high school Spanish, or equivalent.* (4 units)

3. Elementary Spanish III

SPAN 3 completes first-year Spanish. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Hispanic culture. *Prerequisite: SPAN 2 or equivalent.* (4 units)

21. Intermediate Spanish I

First in a three-part review of the fundamentals of spoken and written Spanish. Progressive readings and exercises in conversation and composition. Development of an understanding of Hispanic culture. Course conducted in Spanish. *Prerequisite: SPAN 3 or three years of high school Spanish.* Does not fulfill the Experiential Learning component of Core 2009. (4 units)

21EL. Intermediate Spanish I— Experiential Learning

First in a three-part review of the fundamentals of spoken and written Spanish. Progressive readings and exercises in conversation and composition. Development of an understanding of Hispanic culture. All sections of SPAN 21EL contain an integrated Experiential Learning component, using a reflective community-based learning placement. All students enrolled in SPAN 21EL will be automatically enrolled in SPAN 97 (Community-Based Learning Practicum) at the end of the first week of class. Course conducted in Spanish. *Prerequisite: SPAN 3 or three years of high school Spanish.* (4 units)

22. Intermediate Spanish II

A continuation of Spanish 21, further develops oral and written communication skills through the study of culture, grammar, vocabulary, and authentic literature and media. Authentic communicative activities are emphasized inside the classroom. Course conducted in Spanish. *Prerequisite: SPAN 21 or equivalent.* (4 units)

22EL. Intermediate Spanish II— Experiential Learning

Continuation of Spanish 21EL, further develops oral and written communication skills through the study of culture, grammar, vocabulary, and authentic literature and media. Authentic communicative activities are emphasized inside the classroom and through community-based learning outside of the classroom. All sections of SPAN 22EL contain an integrated Experiential Learning component, using a reflective community-based learning placement. All students enrolled in SPAN 22EL will be automatically enrolled in SPAN 97 (Community-Based Learning Practicum) at the end of the first week of class. Course conducted in Spanish. *Prerequisite: SPAN 21, 21EL, or equivalent.* (4 units)

23. Intermediate Spanish III

Completes the intermediate sequence. Further develops skills of Spanish, including listening, speaking, reading, and writing. Develops an appreciation of Hispanic values and civilization along with continued progress in the language. Course conducted in Spanish. *Prerequisite: SPAN 22 or equivalent.* (4 units)

23EL. Intermediate Spanish III—Experiential Learning

Completes the intermediate sequence. Further develops skills of Spanish, including listening, speaking, reading, and writing. Special attention is given to developing an appreciation of Hispanic values and civilization along with making continued progress in the language. All sections of SPAN 23EL contain an integrated Experiential Learning component, using a reflective community-based learning placement. All students enrolled in SPAN 23EL will be automatically enrolled in SPAN 97 (Community-Based Learning Practicum) at the end of the first week of class. Course conducted in Spanish. *Prerequisite: SPAN 22, 22EL, or equivalent.* (4 units)

97. Community-Based Learning Practicum

For students concurrently enrolled in SPAN 21EL, 22EL, or 23EL, an Experiential Learning for Social Justice component, an integrated, reflective, community-based learning placement. Includes eight weeks of participatory work in a community agency. *Requirements: Two hours per week at agency site over course of the placement.* (1 unit)

UPPER-DIVISION COURSES: SPANISH STUDIES

100. Advanced Spanish I

Continued development of all Spanish skills at an advanced level. Special attention to composition. Systematic introduction to literary analysis. Required of all majors and minors. *Prerequisite: SPAN 23 or equivalent.* (5 units)

101. Advanced Spanish II

Continued development of all Spanish skills and completion of the introduction to literary analysis begun in SPAN 100. Required of all majors and minors. *Prerequisite: SPAN 100 or equivalent.* (5 units)

Note: Admission to the following upper-division courses requires completion of SPAN 100 and 101 or evidence of equivalent preparation.

102. Advanced Spanish III

Advanced reading, composition, and conversation. (Studies abroad; units vary based on program)

107. Advanced Spanish Composition

Intensive systematic development of the forms of discourse in Spanish. (5 units) NCX

108. Spanish for Advanced Spanish Speakers

Native and near-native oral/aural proficiency. A course for native and near-native speakers who learned Spanish in a home environment and/or were residents in a Spanish-speaking country, but who may not have had formal training in the language. Emphasis on cultural exploration and the grammatical problems of such speakers. Special emphasis given to improvement of written expression, grammar, and orthography. *Prerequisite: At least four years of high school Spanish or completion of Intermediate Spanish at the university level.* (5 units) NCX

110. Advanced Spanish Conversation

A course designed to enhance advanced students' command of spoken Spanish through discussion of cultural, social, and contemporary political issues. As a result, students will see their vocabulary increase and will thus be able to expand their use of more advanced grammatical structures. (5 units) NCX

112. Mexican Culture

Although Mexico is a neighboring country, bordering California itself, its image in America is profoundly deformed and simplified. Through a selection of readings and films, the course offers an introductory review of Mexican history, contemporary social and political developments, and fine arts and music, with particular attention to cultural values. Most readings in Spanish, films in Spanish with English subtitles. *Prerequisite: SPAN 100 or equivalent.* (5 units)

113. The Revolution in Mexican Culture

Readings and analysis of the works of Mexican writers and artists that interpret the Mexican Revolution of 1910 and reflect Mexican culture. (5 units)

114. Culture and Society of the U.S.-Mexico Border

A study of social and cultural aspects of the U.S.-Mexico border. This course discusses topics such as labor, environmental, immigration, and women's issues, but with attention also to current discourse on the border in cultural critique and the arts. By the end of the course, students will be expected to have developed a more coherent and sophisticated view of the border region than that generally purported by commercial media outlets. *Prerequisite: SPAN 100 or equivalent. Recommended prerequisite: SPAN 101 or equivalent.* (5 units)

120. Major Works of Spanish Literature I

Readings in Spanish literature from the early forms of Spanish literature to the end of the 17th century. (5 units)

121. Major Works of Spanish Literature II

Readings in Spanish literature of the 18th and 19th centuries. Continuation of SPAN 120. May be taken separately. (5 units)

122. The Spanish Picaresque Novel

A study of the development of the Spanish picaresque novel and its influence on other European literatures. Key works, analyzed from a socio-historical perspective, include Lazarillo de Tormes (1554), El Guzmán de Alfarache (1599), and El Buscón (1626). (5 units)

123. Siglo de Oro Drama

A study of the Spanish comedia of the Siglo de Oro. Particular emphasis on the impact of Lope de Vega and the creation of a national theatre. Literary analysis of the comedias of the most representative Spanish dramatists of the period: Calderón de la Barca, Rojas Zorilla, Tirso de Molina, Ruiz de Alarcón, Guillén de Castro, and Lope de Vega. (5 units)

124. Realism in the 19th-Century Spanish Novel

A study of the decline of Romanticism and the evolution of the Realist movement in 19th-century Spain. Special emphasis on the novels of Alarcón, Galdós, and Blasco Ibáñez. (5 units)

125. Colloquium: Spanish Literature and Culture

Topic varies. Study and discussion of selected themes in Spanish Peninsular literature and culture. May be retaken for credit. (5 units) NCX

130. Survey of Latin American Literature I

Latin American literature from the pre-Columbian period to 1888. (5 units)

131. Survey of Latin American Literature II

Latin American literature from 1888 to present. (5 units) NCX

133. Mexican American Literature

Reading, analysis, and discussion of Mexican American literature in its historical context. Emphasis on the novel and short story. (5 units) NCX

135. Colloquium: Latin American Literature and Culture

Topic varies. Reading and discussion of selected themes in Latin American literature and culture. May be retaken for credit. (5 units) NCX

136. Contemporary Latin American Short Story

Examination of the Latin American short story from Quiroga to the present. Representative works reflecting the diverse cultural backgrounds and ideologies of the authors. (5 units)

137. Latin American Cultures and Civilizations

Exploration of the basic factors that have molded and continue to shape the diverse lives and institutions of contemporary Spanish-speaking peoples of the Americas. (5 units)

138. Hispanic Poetry

An introduction to poetic expression in the Spanish language. The course will involve an overview of Spanish meter and rhyme followed by the study of classical forms (love, mystical, and satirical poetry), as well as contemporary periods and forms (Romanticism, modernismo, the Vanguards, revolutionary, and experiential poetry). *Prerequisite: SPAN 101 or equivalent.* (5 units)

139. Haunted Literature: Ghosts and the Talking Dead in Latin-American Narrative

Ghosts hauntings, the talking dead, and the persistence of something absent are recurrent tropes in the Latin American cultural imagination. Through a selection of fiction, film, and critical writings, this course will examine the recurrence and significance of this imagery in contemporary narrative genres. Discussions may include the following writers and film directors: María Luisa Bombal, Juan Rulfo, Julio Cortázar, Gioconda Belli, Tomás Eloy Martínez, Guillermo del Toro, and Alejandro González Iñárritu. *Prerequisite: SPAN 101 or the equivalent. Recommended prerequisite: One survey course in Latin American Literature.* (5 units)

140. Modern Latin American Literature I

Reading, analysis, and discussion of the works of major Latin American writers of the early 20th century (e.g., Gallegos, Barrios, Prado, and Romero). (5 units)

141. Modern Latin American Literature II

Reading, analysis, and discussion of the works of major Latin American writers of the late 19th and early 20th centuries. Emphasis on the novel. (5 units)

145. Mid-20th-Century Latin American Literature

Reading, analysis, and discussion of the works of major Latin American writers from 1946 to 1962. Carpentier, Yáñez, Fuentes, and others. (5 units)

147. Cinema, Politics, and Society in Latin America

The course aims to introduce the students to current political and social issues in Latin America through exposition to and discussion of some relevant commercial or independent films of recent decades. Textbook material and additional readings from journalistic, literary, or academic contexts will further expand on the themes exposed in each film. *Prerequisite: SPAN 100 or the equivalent.* (5 units)

148. 20th-Century Latin American Women Writers

Reading, analysis, and discussion of novels and short fiction by major Latin American women writers of the 20th century (e.g., Bombal, Garro, Poniatowska, Allende, Valenzuela, and others). (5 units)

149. Contacts, Clashes, Border Crossings: Hybridity and Liminality in Latin American Cinema

Using film studies, border studies, and Latin American studies, students will study the processes of hybridity, liminality, and mestizaje in Latin American culture and film. The course will be taught in English to accommodate non-bilingual speakers. (5 units)

150. 20th-Century Spanish Literature I

Major writers of Spain from 1898 to 1936. Particular emphasis on the Generation of 1898. (5 units)

151. 20th-Century Spanish Literature II

A look at some of the best expressions of literary protest during the Franco regime. Reading, analysis, and discussion of works by Camilo José Cela, Ana María Matute, Ramón Sender, and Antonio Buero Vallejo. (5 units)

165. Cervantes: Don Quijote

Cervantes' masterpiece, as a reflection of Spanish society during the Spanish Empire, an exemplar of Baroque art, and a synthesis and culmination of narrative prose. (5 units)

175. History of the Spanish Language

A study of the evolution of the Spanish language from its roots on the Iberian Peninsula to its spread throughout the world. From a linguistic perspective. Special attention will be paid to social and political factors that have helped to shape the language in its modern forms. (5 units)

176. Spanish Applied Linguistics II

Detailed scientific analysis of the morphology and syntax of modern Spanish. Contrastive analysis within the Spanish structure system and between the Spanish and English structure systems. Required of all prospective teachers of Spanish. *Prerequisite: SPAN 175.* (5 units)

178. Teaching Methods in Spanish

Practical and theoretical insights into the dynamics of teaching and learning Spanish at the secondary and postsecondary level. (5 units) NCX

179. Technology for Teaching and Learning Spanish

Preparation for the prospective Spanish teacher in the design, use, and evaluation of traditional and current technologies for teaching Spanish language and cultures. (5 units) NCX

194. Peer Educator in Spanish

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

195. Spanish Translation I

Skills and strategies involved in the art of translation. A variety of texts (general, historical, cultural, technical, etc.) illustrate the different modes and nuances of translation. Students assigned special translation projects. May be retaken for credit but will only be accepted once toward the Spanish studies major or minor. *Prerequisites: SPAN 101 and permission of the instructor.* (5 units) NCX

197. Special Topics

Variable topics in specific fields. (Studies abroad; units vary based on program)

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared Spanish studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Prerequisite: Written permission of the instructor and department chair is required in advance of registration.* (1–5 units) NCX

UPPER-DIVISION COURSES: MODERN LITERATURE AND CULTURE

Note: Knowledge of a foreign language is not necessary for the following comparative course. It cannot be used to fulfill a major or minor requirement in a foreign language or to fulfill the second language requirement.

180. International Cinema

An interdisciplinary course treating film as a medium of cultural expression in China, England (or Australia or Canada), France, Germany, Italy, Japan, Latin America, Russia, and Spain. (5 units)

DEPARTMENT OF MUSIC

Professor Emeritus: Lynn R. Shurtleff
Professors: Hans Boepple (*Department Chair*), Teresa McCollough
Associate Professor: Nancy Wait-Kromm
Assistant Professors: Bruno Ruviaro, Christina Zanfagna
Lecturer: Scot Hanna-Weir

The Department of Music offers a degree program leading to the bachelor of arts in music as well as a minor in music. A minor in musical theatre is available in conjunction with the Department of Theatre and Dance. The Department of Music is committed to the education of the whole person: intellectual, emotional, physical, and spiritual. The overarching goal of the department is to provide a stimulating artistic and intellectual environment that fosters individual expression and creativity through the study of music and performance within the context of liberal arts studies in a Jesuit university. The Department of Music's curriculum is designed to provide students of diverse backgrounds with the skills necessary to comprehend, perform, and appreciate music's role in human history and its power to enhance the lives of all people. Because individual study and performance is essential to the expression and acquisition of music as a language and art form, private instruction and membership in all departmental music ensembles are available to all Santa Clara students.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements, students majoring in music must complete the department's lower-division core requirements and choose one of three upper-division emphases. Students must choose an emphasis after they have completed their lower-division requirements.

Lower-Division Core

- MUSC 1, 2, 3
- MUSC 1A, 2A, 3A
- MUSC 8
- MUSC 9
- Minimum of three quarters of private instruction
- Minimum of three quarters in an approved departmental ensemble
- Music at Noon: All majors and minors must complete one quarter of MUSC 16/116

Upper-Division Emphases

Theory/Composition Emphasis

- MUSC 104
- MUSC 104A
- MUSC 105
- MUSC 156
- Two Culture and Context courses
- One upper-division elective course
- Minimum of three quarters of private instruction in composition
- Minimum of three quarters of an approved departmental ensemble

Performance Emphasis

- MUSC 104
- MUSC 104A
- MUSC 156
- Two Culture and Context courses
- One upper-division elective course
- Minimum of six quarters of private instruction
- Minimum of three quarters in an approved departmental ensemble

Culture and Context Emphasis

- MUSC 130
- MUSC 131
- Three Culture and Context courses
- One upper-division elective course
- Minimum of three quarters in an approved departmental ensemble

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in music:

Music Skills/Literacy courses

- Two courses from the Music Theory sequence
- Two courses from the Musicianship sequence

  Note: Students may take a Placement Exam to test into a course that is appropriate for their skill level, but must still complete two courses from both the Theory and Musicianship sequences.

- MUSC 8
- MUSC 9

Culture and Context courses

- One Culture and Context course

Experience courses

- Performance ensembles: A minimum of three quarters in any approved departmental ensemble
- Private instruction: A minimum of two quarters from any of the following: 60/160, 61/161, 62/162, or MUSC 30, 31, 34, 35, 35A, 36, or 37
- Music at Noon: All majors and minors must complete one quarter of MUSC 16/116

Elective courses

- One upper-division elective course

Note: All upper-division 5-unit courses satisfy the elective requirement for music majors and minors.

LOWER-DIVISION COURSES

1. Music Theory I

Beginning course in a comprehensive theory sequence; covers notation, scales, intervals, chords, rhythm, and meter. Required for musical theatre minor. *Prerequisite: None. Majors and minors with extensive theory background are recommended to take the Theory Placement Exam.* (4 units)

1A. Musicianship I

Entry-level course to develop aural skills through solfège and rhythmic training, keyboard harmony, improvisation, and dictation. *Prerequisite: None. This course is recommended to be taken in conjunction with MUSC 1. Majors and minors with extensive theoretical and/or instrumental or vocal training are recommended to take the Musicianship Placement Exam.* (4 units)

2. Music Theory II

Continuation of Music Theory sequence. Introduction to basic common practice harmonic progressions: triad relationships, part writing, figured bass, and harmonic dictation. *Prerequisite: MUSC 1 or permission of instructor.* (4 units)

2A. Musicianship II

Continuing course to develop aural skills through solfège and rhythmic training, keyboard harmony, improvisation, and dictation. This course is recommended to be taken in conjunction with MUSC 2. *Prerequisite: MUSC 1A or permission of instructor.* (4 units)

3. Music Theory III

Continuation of Music Theory sequence. Further instruction in common practice harmony; figured bass and part-writing; dominant and diminished seventh chords and resolutions; harmonic dictation and some score analysis. *Prerequisite: MUSC 2 or permission of instructor.* (4 units)

3A. Musicianship III

Continuing course to develop aural skills through solfège and rhythmic training, keyboard harmony, improvisation, and dictation. This course is recommended to be taken in conjunction with MUSC 3. *Prerequisite: MUSC 1A or permission of instructor.* (4 units)

8. Introduction to Listening

This course offers an introduction to different musical cultures, elements, forms, and techniques through listening, lecture, and performance activities. Designed for both majors and nonmajors, this course focuses on strategies for listening to, and writing about, music from a global perspective. (4 units)

9. Introduction to Electronic Music

This course combines elements of history, theory, and practice of electronic music. The computer becomes the instrument through which students explore new ways of manipulating and organizing sound. Designed for both majors and nonmajors, this course creates a space for discussion and critical listening of different types of electronic music (contemporary, popular, and experimental), culminating in a final creative project by each participant. No previous computer music experience required. (4 units)

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address music and language; the ways people around the world have cultivated music and used music to cultivate other aspects of themselves and their societies; and other topics. *Successful completion of C&I I (MUSC 11A) is a prerequisite for C&I II (MUSC 12A).* (4 units each quarter)

16/116. Music at Noon

This class is organized around the Music at Noon series of concerts and performances. The weekly series brings the opportunity to experience live performances of music from all parts of the world by artists of local, national, and international renown. Students are required to attend all performances and write a reflective paper that summarizes their individual experience. *Required class for music majors and minors.* (1 unit)

30. Beginning Piano Class

Introductory instruction in piano in a classroom setting. Class limited to 16 students. *Can be substituted for one quarter of private instruction.* (4 units)

31. Intermediate Piano Class

Intermediate classroom piano instruction. Class limited to 16 students. *Prerequisite: MUSC 30 or permission of instructor. Can be substituted for one quarter of private instruction.* (4 units)

34. Beginning Voice Class

Study and application of basic vocal techniques to develop singing facility. Practical experience in performing. May be repeated for credit. *Required for musical theatre minor. Can be substituted for one quarter of private instruction.* (4 units)

35. Intermediate Voice Class

Continuation of MUSC 34, focusing on more advanced approaches to vocal technique, repertoire, and performance. May be repeated for credit. *Prerequisite: MUSC 34 or permission of instructor.* (4 units)

35A. Advanced Voice Class

This course is designed as the culminating class in the three-course sequence of a full year of vocal study. Students will continue to use and refine the techniques and performance skills developed in MUSC 34 and 35, with emphasis on repertoire and advanced techniques in language, musicianship, and acting. An off-campus performance component is part of this class. *Prerequisite: MUSC 35 or permission of instructor.* (4 units)

36. Beginning Guitar Class

Examination of essential elements required to play guitar in the classical style, including fundamental principles of technique, sight-reading, pedagogic repertoire, history, and literature. May be repeated for credit. *Can be substituted for one quarter of private instruction.* (4 units)

37. Beginning Composition Class

This course explores personal expression through the creation of original music. Students explore the music and acoustical properties of sound while developing the creative and technical skills necessary to complete a finished musical piece. Focus is on the issue of attaining a personal "voice" rather than developing a specific style in which to work, and musical improvisation will play a role in enhancing the student's ability to be spontaneous as well as thoughtful in creating a piece of music. *Can be substituted for one quarter of private instruction.* (4 units)

UPPER-DIVISION COURSES

104. Music Theory IV/Advanced Harmonic Language

Continuation of Music Theory sequence. Introduction to chromatic harmony: secondary dominant chords, altered chords, tonicizing and modulation, score analysis, harmonic dictation, and creative application of four-part writing using non-harmonic tones. *Prerequisite: MUSC 3 or permission of instructor. Meets the elective requirement for music majors and minors.* (5 units)

104A. Musicianship IV

A continuing course to develop aural skills through solfège and rhythmic training, keyboard harmony, improvisation, and dictation. *This course is recommended to be taken in conjunction with MUSC 104. Prerequisite: MUSC 3A or permission of instructor. Meets the elective requirement for music majors with a cultures and context emphasis.* (5 units)

105. Theory/Composition Seminar

This course is an extension and culmination of previous theoretical and musicianship training. With an emphasis on solidifying high-level music skills, this seminar offers an in-depth analysis of elements of musical language post-1900. Materials explored (such as extended harmony, melodic chromaticism, advanced rhythmic techniques, timbre, texture) will be applied in compositional and improvisational activities. *Prerequisite: MUSC 104 or permission of instructor. Meets the elective requirement for music majors and minors.* (5 units)

109. Lyric Diction

This course provides singers and actors with a vital introduction to the fundamentals of accurate pronunciation in English, French, German, Latin, and Italian language, with an emphasis on lyric (sung) diction. Pronunciation and comprehension of the International Phonetic Alphabet is taught. *Required for musical theatre minors, lyric track. Meets the elective requirement for music majors and minors.* (5 units)

110. Instrumentation/Arranging

An exploration of orchestration and arranging for all instruments. *Prerequisite: MUSC 2 or permission of instructor. Meets the elective requirement for music majors and minors.* (5 units)

111. Counterpoint

Detailed study and creation of two-part contrapuntal music in the 16th-century Renaissance and 18th-century Baroque styles. *Prerequisite: MUSC 104 or permission of instructor. Meets the elective requirement for music majors and minors.* (5 units)

113. Form and Analysis

Study of the relationship in Western music between shape/form/structure and harmonic/melodic/thematic content. Music from 1650–1950 will be analyzed in order to achieve this goal, focusing on the primary structures used throughout and since the Common Practice period. *Prerequisite: MUSC 2 or permission of instructor. Meets the elective requirement for music majors and minors.* (5 units)

115. Experimental Sound Design

This course is about creating sounds on the computer from scratch. How to simulate the sound of wind? How to mimic a cricket chirping or a bird singing? How to create your own synthesizer or simulate the sound of an acoustic guitar? Beyond familiar sounds, how many others are still waiting to be "discovered"? Can you create a sound that no one ever heard before? Using the powerful SuperCollider language in a hands-on class environment, students will learn the basics of various digital synthesis techniques and explore their creative applications in electronic music composition and in other fields. *Meets the elective requirement for music majors and minors.* (5 units)

117. 20th-Century Music Theory

Study of structures and systems used from the late-19th century through mid-20th century including atonality and serialism. *Prerequisite: MUSC 104 or permission of instructor. Meets the elective requirement for music majors and minors.* (5 units)

118. Directed Study in Pedagogy

A teaching practicum in which junior or senior music majors work with a music faculty member in a classroom, studio, or ensemble framework to assist in the planning and execution of a course. *Music majors only.* (1 unit)

119. Music, Technology, and Society

How does music change in response to technology, and how does technology affect music making? This course examines how technology in music and the arts reflects and informs societal and cultural change. The course explores the ways in which music production, consumption, and distribution inform and are informed by digital technology. Assignments include readings and critical analysis, as well as composing pieces and collaborating on creative projects that explore the topics presented in class. *Open to all students by instructor permission. Meets the elective requirement for music majors and minors.* (5 units)

120. Junior Recital

Intended for music majors and minors; 30 to 45 minute winter quarter performance of solo repertoire in a variety of styles. *Must be sponsored by student's SCU private instructor, approved by the department, and preceded by a recital hearing.* (1 unit)

121. Senior Recital

Intended for music majors and minors; 45 to 60 minute spring quarter performance of solo repertoire in a variety of styles. *Must be sponsored by student's SCU private instructor, approved by the department, and preceded by a recital hearing.* (2 units)

130. Anthropology of Music

An intellectual history of ethnomusicology. Approaches and theories from anthropology, musicology, folklore, religious studies, linguistics, critical theory, and gender studies will be explored in order to interrogate music's relationship to culture, power, and practice. *Meets the elective and Culture and Context requirement for majors and minors. Also listed as ANTH 153.* (5 units)

131. Music Research and Writing

This course is an introduction to research methods in music scholarship. Students will engage in local fieldwork-based projects and learn techniques for documenting, interpreting, and writing about musical cultures. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

132. The History of Hip-Hop

This course will examine the historical contexts and diasporic flows that have shaped (and have been shaped by) hip-hop music. Topics explored will include the multicultural roots of hip-hop from West African bardic traditions to Jamaican sound system culture to African-American oral practices. *Meets the elective and Culture and Context requirement for majors and minors. Also listed as ETHN 132.* (5 units)

134. Popular Music, Race, and American Culture

A cultural history of blues-based American popular music from minstrelsy to disco. Emphasis will be placed on the development of a wide range of musical styles, such as ragtime, classic blues, swing, rhythm and blues, rock and roll, soul, and funk. Major themes include the impact of the music industry, the commercialization of black music, race and gender politics, social movements, and technology. *Meets the elective and Culture and Context requirement for majors and minors. Also listed as ETHN 164.* (5 units)

136. Music of Africa

This course focuses on the history, musical characteristics, and sociopolitical, economic, and cultural roles of selected musical traditions from across Africa. Major themes include nationalism, resistance, and urbanization. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

139. Flamenco History & Performance

This course will cover the musical and social history of flamenco, from its roots in India along the "gypsy" trails through North Africa, Asia, and Europe. Students will examine how this dynamic art form grew out of the cultural legacy of the "gitanos" (gypsies) in Andalusia, Spain and learn about flamenco song forms, dances, and rhythms. *Meets the elective requirement for majors and minors.* (5 units)

156. Improvisation

This class will explore the process of creating music through interactive activities designed to awaken students' imagination and expand/deepen their understanding of music as an art form. The class community itself will be an improvising performance ensemble. *Prerequisites: Theory I and/or Musicianship I; or commensurate experience and permission of the instructor. Meets the elective requirement for music majors and minors.* (5 units)

157. Laptop Orchestra

Computer-mediated music ensemble and learning environment for experimental electronic music composition and performance practice. The course is interdisciplinary by nature, exploring the intersections of music, computer science, interaction design, composition, and live performance, with a particular emphasis on the development of musical creativity making use of cutting-edge technology. Classes will consist mostly of hands-on exercises leading to the creation and performance of new electronic pieces to be presented in a public concert at the end of the quarter. *No music background is required. Meets the elective requirement for music majors and minors.* (2 units)

189. Sacred Music and the Church

This course examines the interplay between church doctrine, musical style, and the power of social, political, and cultural forces, primarily through the genre of the mass. Gregorian chant, sacred concert music, modern service music, and non-western music traditions will be studied. *Meets the elective requirement for all music majors and minors.* (5 units)

190. Music of the Middle Ages

Survey of Western music from approximately 800–1450. Works to be studied include chant, motets, and various sacred and secular music of the medieval period. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

191. Music of the Renaissance

Survey of Western music from approximately 1450–1600. Study of the development of polyphony through the great sacred and secular works of the period. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

192. Music of the Baroque Period

Survey of Western music from approximately 1600–1750, including study of the great works of J.S. Bach, Handel, and others. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

193. Music of the Classical Period

Survey of Western music from approximately 1750–1827, including the study of the great works of Haydn, Mozart, and Beethoven. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

194. Music of the Romantic Period

Survey of Western music of the 19th century, including the great works of Beethoven, Brahms, Wagner, and others. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

195. Early 20th Century Music

Survey of Western music from Debussy to World War II, including Strauss, Schoenberg, Stravinsky, and others. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

196. Music Since 1945

Survey of Western music from 1945 to the present, including the rise of technology in music and cross-cultural trends of the late 20th and early 21st centuries. *Meets the elective and Culture and Context requirement for majors and minors.* (5 units)

197. Senior Honors Project

This course is designed to allow senior music majors and minors an opportunity to pursue in-depth musical studies within the parameters of a project or thesis in one of the following areas: music history/ethnomusicology, composition/music theory, or performance studies. This project is administered solely by the Department of Music as a course offering, and is separate from the University Honors program. (5 units)

PERFORMING ENSEMBLE COURSES

Note: These ensemble courses meet the ensemble requirement for music majors and minors, and may be repeated for credit. Students should enroll with the appropriate lower- or upper-division course number, depending on their status.

40/140. University Orchestra

Preparation and concert performance of major works of orchestral literature. *By audition only. Open to all SCU students with permission of instructor. This course fulfills the ensemble requirement for music majors and music minors.* (2 units)

42/142. Concert Choir

A mixed ensemble of select singers that performs a wide variety of a cappella and accompanied secular and sacred choral music from every period in music history through the present day. Emphasis is on a comprehensive survey of choral literature through performance, as well as development of choral tone, blend, diction, and sight singing skills. *Open to all SCU students with permission of instructor. No audition required—see instructor for voice part assignment. Fulfills the ensemble requirement for music majors and music minors.* (2 units)

43/143. Chamber Singers

An 18–24 voice mixed ensemble of highly select advanced singers. Repertoire includes a variety of sophisticated chamber choral music from the Renaissance to the present day. *By audition only. Open to all SCU students with permission of instructor. Fulfills the ensemble requirement for music majors and music minors.* (2 units)

45/145. Jazz Band

Preparation and performance of jazz literature for large ensemble. *By audition only. Fulfills the ensemble requirement for music majors and music minors.* (1 unit)

46/146. Jazz Combo Workshop

Focus on jazz improvisation, techniques, and theory in small group performance. *By audition only. Fulfills the ensemble requirement for music majors and music minors.* (0.5 units)

52/152. World Percussion Ensemble

African/Latin American influenced percussion and rhythms applied to traditional and nontraditional instruments, movement, and voice in an ensemble setting. *Open to all students. Fulfills the ensemble requirement for music majors and music minors.* (1 unit)

53/153. Songs and Scenes Onstage

Students prepare both solo and ensemble operatic excerpts in a workshop setting. Technical, stylistic, and dramatic preparation employing music reading skills, ornamentation, gesture, and choreography. Public performance in a black box setting presented at the end of the quarter. *Formerly Opera Workshop. By audition only.* (2 units)

54/154. Wind Symphony

Study and performance of symphonic band literature in a wide variety of styles. *Fulfills the ensemble requirement for music majors and minors. Open to all SCU students with instructor permission.* (2 units)

55/155. New Music Ensemble

Study and performance of a variety of works written in the 20th and 21st centuries. *Fulfills the ensemble requirement for music majors and music minors. Open to all SCU students with instructor permission.* (2 units)

PRIVATE INSTRUCTION

The Department of Music offers private instruction in composition, conducting, and vocal and instrumental studies. Please contact the department office for further information on specific areas of interest.

Note: Private instrumental, composition, and vocal lessons are available to all Santa Clara students. Students may enroll in 1-hour (1 unit), 45-minute (0.75 units), or 30-minute (0.5 units) lessons depending upon their status as a major, minor, or elective student. A full description of the private instruction protocols is available at www.scu.edu/music. Nine private lessons are given each quarter. All students taking lessons are required to participate in an end-of-quarter jury hearing. Private lessons may be repeated for credit and are open to nonmajors on a space-available basis. Priority registration is given to music majors, minors, musical theatre minors, and students enrolled in departmental ensembles or preparing for a junior or senior recital.

DEPARTMENT OF PHILOSOPHY

Professors Emeriti: James W. Felt, S.J., William J. Prior
Professors: Philip J. Kain, Michael Meyer
Associate Professors: Christopher B. Kulp, Scott LaBarge, Lawrence Nelson, William A. Parent, Mark A. Ravizza, S.J., Shannon Vallor (*Department Chair*)
Assistant Professor: Erick Ramirez
Acting Assistant Professor: Meilin M. Chinn
Lecturers: Brian Buckley, Justin Remhof

The Department of Philosophy offers a degree program leading to the bachelor of arts in philosophy. Philosophy inquires directly into the relation of human beings to the world: what we are, how we know, what values are, how we live. Worth pursuing for its own sake, philosophical inquiry also promotes analytical thinking and precise expression and, thus, is excellent undergraduate preparation for a number of professional careers in areas such as law, government, finance, media, writing, and computer programming. To qualify for honors in philosophy, the major ordinarily must have a 3.5 grade point average in philosophy courses and complete PHIL 197 with a grade of A– or better.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of arts degree, students majoring in philosophy must complete the following departmental requirements:

- Two lower-division courses from PHIL 2–10, 11A, 12A, 60–89
- PHIL 25 or 27
- PHIL 51, 52, 53, and 90
- Two courses from different historical periods: PHIL 131 (ancient), PHIL 132 (medieval), PHIL 133 (modern), and PHIL 135, 136, 137, 139 (contemporary), or PHIL 134, 139
- One course from PHIL 120–129
- One course from PHIL 125 or 140–149
- Four additional upper-division courses from PHIL 109–199

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in philosophy:

- PHIL 25 or 27
- PHIL 51 and 52
- Four approved upper-division courses; PHIL 53 may be substituted for one upper-division course

Emphasis in Pre-Law

The pre-law emphasis in philosophy is intended to help provide the skills of analytic reasoning and conceptual investigation necessary for the study of law. Philosophical research hones the techniques of careful argumentation and logically disciplined reasoning essential

to the legal analysis of cases and statutes. Also, emphasis on ethics courses will help prepare students for the study and analysis of normative issues. The pre-law emphasis may be taken as part of a philosophy major or minor. Requirements for the pre-law emphasis include:

- One course from PHIL 25, 27, 29, or 152
- One course from PHIL 111, 113, 114, or 154
- One course from PHIL 2, 3, 4, 5, 6, 7, 8, 9, 10, 80, 109, 110, 112, 114, 115, 118, 119, 120, 121, 122, 123, 124, 125, 129, 136, 142, 146 or 180A
- Two additional courses from those in the three lists above

Emphasis in Ethics

The ethics emphasis in philosophy is intended to provide students with a broad understanding of ethical theory and the conceptual analysis of moral problems, including matters of social justice central to the Jesuit educational mission, and thus with the ability to reflect on their own ethical decisions and on their role as morally responsible members of the human community. The ethics emphasis may be taken as part of the philosophy major or minor. Requirements for the ethics emphasis include:

- One lower-division ethics class from PHIL 2–10
- Two ethical theory courses from PHIL 120–129
- Two courses from PHIL 109–119, 154, 180A

An ethics course taught in another department may be substituted with the permission of the chair of the Department of Philosophy.

LOWER-DIVISION COURSES: ETHICS

2. Introduction to Ethics

Consideration of the traditional theoretical questions posed in moral philosophy: standards that determine the morality of an action, the motives and consequences of an act, the good life. Authors studied may include Plato, Aristotle, Aquinas, Bentham, Mill, Kant. (4 units)

3A. Ethics in the Digital Age

Ethical dimensions of the digital revolution, including (but not limited to) privacy, intellectual property, hacking and cyber-crime, virtual identities and virtual worlds, and computer games. Normative inquiry into the use of computers. Topics may include information privacy, peer-to-peer file sharing, end-user copying, software as intellectual property, hacking, online communities, safety-critical software, verification, and encryption. (4 units)

4A. Ethics and Gender

Formal inquiry into normative ethics. Emphasis on ethical principles and theories, as well as the application of these two issues essentially intertwined with concepts of sex and gender as they apply to both men and women. Special attention to gender theory and feminism. Topics studied may include pornography, sexuality, heterosexual/homosexual marriage and family life, domestic violence and rape, abortion and reproduction, fashion and appearance, gender discrimination, sex-based affirmative action, and sexual harassment. *Also listed as WGST 58.* (4 units)

4B. Ethics and Gender in Film

Formal inquiry into normative ethics. Emphasis on ethical principles and theories as they relate to concepts of gender and sex applicable to both males and females. In addition to written texts about ethics and gender, both dramatic and documentary films will be studied to illustrate how gender is both experienced by men and women and portrayed in the lived world. Topics studied may include sexuality and sexual orientation, male and female gender roles, heterosexual/homosexual marriage and family life, sexual violence, transsexuality, abortion and reproduction, and gender discrimination. Films studied may include *Southern Comfort, Boys Don't Cry, Daddy and Papa, Sliding Doors, The Brandon Teena Story, If These Walls Could Talk, The Laramie Project*, and *Juno*. (4 units)

5. Ethics in Society

Formal inquiry into normative ethics. Special attention to general ethical principles and to the practical application of these principles to current ethical issues in society. Topics may include the concepts of freedom, obligation, value, rights, justice, virtue, and moral responsibility, as applied to issues like abortion, punishment, economic distribution, racial and sexual discrimination, sexuality, political obligation, nuclear war, and pornography. (4 units)

5A. Ethics and Marginalized Persons

Formal inquiry into normative ethics. Emphasis on ethical principles and the application of these theories to persons who are gay, disabled, elderly, and poor. Special attention to recognition, voice, authenticity, dialogue, and place as basic needs of personhood. Subjects raised will target marginalization and the damage it does to persons. Topics studied may include difference, shame, fear, loneliness, desire for accommodation, invisibility, justice, and discrimination. (4 units)

6. Ethics in Business

Formal inquiry into normative ethics. Special attention to general ethical principles and the application of these principles to current moral issues in business. Topics may include truth in advertising, corporate social responsibility, affirmative action, capitalism, government regulation, quality of work-life, environmental and resource issues, and ethical codes of conduct. *Students who take MGMT 6 or MGMT 6H may not take this course for credit.* (4 units)

7. Ethics in Medicine

Formal inquiry into normative ethics. Special attention to general ethical principles and the application of these principles to current moral issues in medicine and the health sciences. Topics may include the definition of death, informed consent, the just distribution of health care, euthanasia and assisted suicide, genetic manipulation, assisted reproduction, research involving human subjects, decisions to forgo life-sustaining medical treatment, truth-telling, and organ transplants. (4 units)

8. Ethics in Politics

Formal inquiry into normative ethics. Emphasis on moral issues in political theory. Possible topics include the concepts of rights, justice, dignity, equality, personhood, desert, retributivism, and utility. Issues discussed may include alienation, individualism, community, discrimination, capital punishment, sexual equality, civil disobedience, revolution, and world hunger. (4 units)

9. Ethics and the Environment

Formal inquiry into normative ethics. Emphasis on moral issues and the environment. Topics include animal rights, anthropocentrism, cost-benefit analysis, human rights, interspecies justice, land (use and value), population control, rights (of future generations and natural objects), values (moral and aesthetic) and preferences, wildlife protection, and wilderness. (4 units)

10. Ethics and the Law

Formal inquiry into normative ethics. Emphasis on moral issues and concepts in contemporary legal debates such as the rule of law, the duty to aid, the relationship between law and ethics, freedom of speech, the right to die, criminally charging minors as adults, the legalization of drugs, obscenity and indecency, the moral justification for punishment, including capital punishment, and state regulation of marriage. (4 units)

LOWER-DIVISION COURSES: CULTURES & IDEAS

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in philosophy and culture over a significant period of time. Courses may address autonomy, personhood, community, justice, human dignity, law, the self, religion, cosmology, and other topics. *Successful completion of C&I I (PHIL 11A) is a prerequisite for C&I II (PHIL 12A).* (4 units each quarter)

LOWER-DIVISION COURSE: INTRODUCTION TO PHILOSOPHY

20. Introduction to Philosophy

An introduction to philosophical questions and methods. Problems studied may include: the nature of mind, the nature of reality, the existence of God, the possibility of free will, the sources and scope of human knowledge, the process of inquiry, and the meaning of life. (4 units)

LOWER-DIVISION COURSES: LOGIC AND REASONING

25. Informal Logic

Introduction to the art of logical reasoning. Emphasis on the ability to recognize common fallacies of argumentation. (4 units)

27. Introduction to Formal Logic

Introduction to the study of deductive inference, including traditional and modern techniques. (4 units)

29. Reasoning and Interpretation in Law

Introduction to basic concepts in logic and argumentation as well as to methods of reasoning, argumentation, and interpretation that commonly appear in American law. Examination of arguments; deduction and induction; varieties of meaning; definitions and their purposes; informal fallacies; categorical syllogisms; ordinary language arguments; enthymemes; analogy in legal and moral reasoning; causality; probability; statistical reasoning; authority; causality; precedent and stare decision; interpretations and reasoning from statutory rules; reasoning from case law; nature and legitimacy of judicial adjudication; methods for analyzing cases; explanatory and justifying reasons; conflict and legal rules. (4 units)

LOWER-DIVISION COURSES: HISTORY OF PHILOSOPHY

51. History of Philosophy: Classical and Medieval

Beginnings of Western philosophy. Representative philosophers of the Greek and medieval traditions, with attention to their historical milieu and their relevance to contemporary thought. (4 units)

52. History of Philosophy: Early Modern

Principal fashioners of the modern mind. 17th- and 18th-century philosophers studied in the historical context of their times with attention to their impact on the present. (4 units)

53. History of Philosophy: Modern and Contemporary

Introduction to the closer roots of modern philosophy, from the critical revolution of Kant to some of the dominant currents of the 20th century. *Prerequisite: PHIL 52 strongly recommended.* (4 units)

LOWER-DIVISION COURSE: DIVERSITY AND EXPERIENTIAL LEARNING FOR SOCIAL JUSTICE

70. Philosophy and Disability

Examines the nature and meaning of disability: what it is like living with disability (one's own or others'); the legal, social, and ethical aspects of disability (particularly on justice and individual and personal treatment of disabled persons); and the intersections of disability with other social categories such as class, ethnicity, sexual orientation, age, and race. Students will be exposed to these issues by reading scholarly and nonfiction texts, doing research, viewing films, and working with disabled persons in the community through the Arrupe partnerships for community-based learning. (4 units)

LOWER-DIVISION COURSE: SCIENCE, TECHNOLOGY, AND SOCIETY

80. Science, Technology, and Society

An investigation of the philosophical questions surrounding the social impact of science and technology, exploring issues such as technological determinism, the impact of technology on moral life, and the complex relationship among science, technology, and modern culture. Special attention may be given to the social and ethical implications of specific technologies such as robotics, nanotechnology, neuroimaging, and/or technologies for digital communication. (4 units)

LOWER-DIVISION COURSE: METAPHYSICS AND EPISTEMOLOGY

90. Knowledge and Reality

Introduces two central areas of philosophy—epistemology and metaphysics—through the study of several fundamental problems in those areas. Problems that may be studied include the existence of God, the relation between mind and body, freedom of the will, the nature and possibility of knowledge, and the relation between language and reality. Required of all philosophy majors. *Prior completion of PHIL 52 recommended and normally taken during the sophomore year.* (4 units)

Note: The normal prerequisite for all philosophy upper-division courses is upper-division standing.

UPPER-DIVISION COURSES: ETHICS

109. Environmental Ethics

Formal inquiry into normative ethics. Investigation of environmental issues from the point of view of classical ethical perspectives and consideration of how questions about the moral value of the environment provide new challenges to such classical theories. Topics may include animal rights, human rights, the rights of future generations, the rights of nature, anthropocentrism, interspecies justice, land (use and value), wilderness, and values and preferences. (5 units)

110. Ethics and Biomedical Science

Examination of ethical concepts and problems encountered in the practice of medicine and other health professions as well as the conduct of biomedical science. Subjects studied may include the protection of human and animal subjects involved in scientific research, stem cell research and clinical investigation, public support for biomedical research, the proper character and scope of the clinician-patient relationship, informed consent, truth-telling,

confidentiality of medical information, the duty to warn third parties of familial genetic risks and of threats posed by mentally disturbed patients, genetic testing and screening, abortion, the right to refuse life-sustaining medical treatment, surrogate decision making for the incompetent, physician assisted suicide, euthanasia, allocation of scarce medical resources, the definition of death, organ transplantation, and justice in providing access to basic health care services. (5 units)

111. Bioethics and the Law

Bioethics (normative ethics as applied to medicine and the health care professions, the life sciences, and biotechnology) is partially constituted by legal norms and values. Exploration of the evolving relationship between law and bioethics, as well as the substantive law and ethics of selected topics by studying course cases and bioethical texts. Topics studied may include the definition of death, informed consent, the physician-patient relationship, euthanasia/assisted suicide and the law of criminal homicide, advance directives for health care, confidentiality, involuntary civil commitment for mental illness, regulation of research involving human subjects, the use of nonhuman animals in biomedical research, the legal and moral status of prenatal humans, parental control over the medical care of minor children, tort law and medical practice, and state licensure of health care professionals. (5 units)

112. Ethics in Management

Formal inquiry into applied ethics. Emphasis on moral issues encountered by managers. Topics may include the role of ethical principles in business and ethical dilemmas raised by the management and administration of business organizations, such as conflicts of interest, organizational politics, commercial bribery, whistle-blowing, labor-management conflicts, and consumerism. (5 units)

113. Ethics and Constitutional Law

Exploration of how the constitutional rights and interests of individuals and groups of individuals can be understood and justified by moral and social/political philosophy. Particular constitutional subjects to be studied may include the Fourth Amendment (search and seizure), obscenity and pornography, equal protection, gender discrimination, freedom of speech, freedom of association, free exercise of religion, State establishment of religion, discrimination against gays and lesbians, privacy and personal autonomy, privacy and reproductive freedom, and substantive due process. Readings typically consist of Supreme Court cases. (5 units)

114. Ethics and Criminal Law

Examination of the moral and conceptual foundations of contemporary criminal law. Topics studied may include ethical justifications of punishment (utilitarianism, retributivism), sentencing and proportionality, the nature of criminal acts and the guilty mind (*mens rea*), degrees of culpability, mental capacity for *mens rea*, causation, justification and excuse, types of criminal homicide and the death penalty, women's rights and feticide laws, the right of self-defense/defense of others, necessity, duress, the insanity defense, trying juveniles as adults, attributions of criminality (attempt, complicity, conspiracy), plea bargaining and justice, applicability of theories of justice to criminal behavior, constitutional and moral rights of suspects and convicts, and the criminal liability of corporations. (5 units)

115. Feminism and Ethics

Exploration of theories of feminism, patriarchy, and gender, and of ethics as applied to the contemporary experience and social situation of women. Topics may include equality, affirmative action, comparable worth, pornography, sexuality, reproductive technologies, maternal-fetal relations, rape and

domestic violence, female body image, cosmetic surgery, "alternative" families, militarism, and environmentalism. *Also listed as WGST 184.* (5 units)

116. Ethics, Authenticity, Freedom, and Vocation

An inquiry into the moral ideal of being an authentic self, the meaning and moral significance of freedom, and the relation of these to vocation understood as an individual's choice of major projects in the world and fundamental values, as response to the multiple calls of that which is outside of the self, and as the common experience of being summoned by a specific person seeking help or attention and of having to respond to this summons. The central premise of the course is that anyone who asks the classic questions of vocation (What am I good at doing? What am I passionate about doing? What are my values? Where do I find meaning of life? Where do I and the needs of the world and other persons intersect?) should reflect systematically on what it means to be an authentic self and what it means to be an agent with freedom of choice, as well as on the basic moral values that attach to authentic freedom. (5 units)

118. Ethics and Warfare

Historical and contemporary approaches to the ethical issues that arise in warfare. (5 units)

119. Special Topics in Applied Ethics

Selected philosophical problems in applied ethics studied at an advanced level. (5 units)

UPPER-DIVISION COURSES: ETHICAL THEORY

120. Ethical Theory

Examination of major philosophers or issues in moral and social philosophy. Topics may include dignity, moral rights and obligations, justice, moral relativism, virtue, the good, and happiness. (5 units)

121. Classic Issues in Ethics

Exploration of the fundamental questions of ethics through close study of some of the great works of moral philosophy, such as Plato's *Republic*, Aristotle's *Nicomachean Ethics*, Kant's *Groundwork*, and Mill's *Utilitarianism*. (5 units)

122. Political Philosophy and Ethics

Moral issues in political philosophy, especially traditional ethical justifications for political authority. Topics may include theories of political authorization and contract theory, rights, liberty, equality, justice, community, revolution, civil disobedience, and others. *Specific variations include 122A (Classical and Modern) and 122B (Contemporary).* (5 units)

123. Marx and Ethics

Examination of Marx's ethical thought in the context of traditional ethical theory (Aristotle, Kant) and in relationship to his political views and philosophy of history. Topics may include alienation, the human essence, the individual, community, needs, freedom, equality, rights, and justice. (5 units)

124. Virtue Ethics

Exploration of various basic issues in ethics, such as friendship, courage, or compassion, from the point of view of virtues or (moral) character. Close study of classic authors—for example, Aristotle—as well as contemporary writers on virtue ethics. (5 units)

125. Moral Epistemology

An investigation into the intersection of ethics and epistemology. This course is principally concerned with (1) the nature of ethics and (2) the nature and possibility of moral knowledge. Issues to be discussed may include cognitivism and noncognitivism in ethics, moral relativism, moral realism, moral intuitionism, and moral skepticism. *Prerequisites: PHIL 90 and one ethics course, or permission of instructor.* (5 units)

129. Special Topics in Ethical Theory

Selected philosophical problems in ethical theory studied at an advanced level. (5 units)

UPPER-DIVISION COURSES: HISTORY OF PHILOSOPHY

130. Chinese Philosophy

Study of major philosophical traditions of China, including Confucianism, Daoism, Mohism, Legalism, and Buddhism. Areas of emphasis may include topics in ethics, social and political philosophy, and aesthetics, including the cultivation of self and community, proper governance, liberation, cosmology, and the arts.

131. Ancient Philosophy

Study of one major philosopher or philosophical issue (such as substance, causation, or virtue) from the ancient period. *Specific variations include 131A (Socrates—also listed as CLAS 146), 131B (Plato), 131C (Aristotle), and 131D (Love and Relationships in Classical Antiquity—also listed as WGST 133 and CLAS 141).* (5 units)

132. Medieval Philosophy

Study of one major philosopher or philosophical issue (such as universals, existence and the nature of God, or free will) from the medieval period. *Specific variations include 132A (Augustine) and 132B (Aquinas). Prerequisite: PHIL 51 or permission of instructor.* (5 units)

133. Modern Philosophy

Study of one major philosopher or issue (such as mind and body, skepticism and knowledge, or causation) from the modern period. *Specific variations include 133A (Hume), 133B (Kant), 133C (Hegel), 133D (Nietzsche), 133E (Kierkegaard), 133F (Spinoza), 133G (Descartes), and 133H (Great Debates). Prerequisite: PHIL 52 for 133A, F, and G; PHIL 53 for 133B–E or permission of instructor.* (5 units)

134. Skepticism

Study of the problem of skepticism from its origin in ancient Greece to the present day. Considers both skeptical positions and views critical of skepticism. Readings may include Sextus Empiricus, Descartes, Hume, and Wittgenstein. *Prerequisite: PHIL 51 or 52 or permission of instructor.* (5 units)

135. Existentialism

Survey of existentialism, its analysis of the basic structures of human existence, particularly freedom and the experience of living in a broken—even absurd—world, and its major thinkers, such as Kierkegaard, Dostoevsky, Nietzsche, Heidegger, Camus, Sartre, and de Beauvoir. *Prerequisite: PHIL 53 or permission of instructor.* (5 units)

136. The Analytic Tradition

Examination of the major currents in 20th-century Anglo-American philosophy. Philosophers studied may include Frege, Russell, Carnap, Moore, Wittgenstein, and Austin; movements may include logical positivism and ordinary-language philosophy. *Prerequisites: PHIL 90, PHIL 27 recommended; or permission of instructor.* (5 units)

137. Contemporary European Philosophy

Selected topics from 20th-century continental philosophy. (5 units)

138. Phenomenology

An introduction to the 20th-century phenomenological tradition of philosophy, addressing the foundational works of Husserl, Heidegger, and Merleau-Ponty as well as contemporary developments in the field. (5 units)

139. Special Topics in the History of Philosophy

Selected philosophical problems in history of philosophy studied at an advanced level. (5 units)

UPPER-DIVISION COURSES: METAPHYSICS AND EPISTEMOLOGY

140. Philosophy of Science

Exploration of selected philosophic questions that arise in contemporary science, especially physics. Topics include the nature of scientific knowing, the roles of theory and experiment in scientific progress, the sense in which theoretical entities like quarks and electrons can be said to be "real," and the paradoxes of quantum mechanics. Special attention will also be given to the complex relationship between science and society, and the role of values in scientific inquiry. *Prerequisite: PHIL 90 or permission of instructor.* (5 units)

141. Metaphysics: Mind and Reality

Examination of major issues in metaphysics. Topics may include the nature and possibility of metaphysics, free will and determinism, the mind/body problem, personal identity, and metaphysical issues arising in science. *Prerequisites: PHIL 25 or 27 and 90 or permission of instructor.* (5 units)

142. Problems of Knowledge

Examination of major issues in the theory of knowledge. Topics may include justification of belief, a priori knowledge, perception, and theories of truth. *Prerequisites: PHIL 90 or permission of instructor.* (5 units)

143. The Problem of Free Will

Philosophical investigation of the free-will problem. Discussion of concepts of freedom, fate, causation, and God. *Prerequisite: PHIL 90 or permission of instructor.* (5 units)

144. Philosophy of Mind

Examination of issues relating to the existence and nature of mind and its relation to body. *Prerequisite: PHIL 90 or permission of instructor. Specific variations include: 144A (Philosophy of Mind); 144B (Philosophy of Mind: Emotions); and 144C (Philosophy of Mind: Mental Illness).* (5 units)

145. Wittgenstein

A study of the philosophy of the 20th-century philosopher Ludwig Wittgenstein, focusing on his logical theory, metaphysics, and epistemology, from *Tractatus Logico-Philosophicus* to *Philosophical Investigations. Prerequisite: PHIL 90 or permission of instructor.* (5 units)

146. Philosophy of Language

Examines the natures of meaning, communication, and language itself, as well as how language and thought relate to the world. (5 units)

149. Special Topics in Metaphysics and Epistemology

Selected philosophical problems in metaphysics and/or epistemology studied at an advanced level. *Prerequisite: PHIL 90 or permission of instructor.* (5 units)

UPPER-DIVISION COURSES: OTHER

150. Philosophy of Religion

Philosophical inquiry, based on both classical and contemporary views, as to whether the existence of God can be rationally demonstrated, whether it is compatible with evil, how human beings relate to God, the nature of faith, and the nature of religious language. (5 units)

151. Philosophy and Film

This course focuses on the aesthetic and ethical dimensions of English language films, from the silent era to the present. We will discuss at least some of the following topics: What makes a film, screenplay, or novel, "good"? This will include discussion of the aesthetic and ethical values that contribute to the quality of film and literature. What is the role of artistic intention in understanding and evaluating film (including the "auteur theory" account of cinematic creation and the "intentional fallacy"). What role do various types of interpretation and genre play in understanding and evaluating the quality of film and literature? What, if any, is the proper place of various types of censorship, from the "production code" of the 1930s to the Motion Picture Association of America (MPAA) rating system in place today? (5 units)

152. Intermediate Logic

Study of various topics in modern symbolic logic. *Prerequisite: PHIL 27 or permission of instructor and department chair.* (5 units)

154. Philosophy of Law

Proper limits and uses of the criminal law in regulating human behavior. (5 units)

155. Philosophy of Art

Philosophical examination of the historical development of the aesthetic concepts of taste and beauty. (5 units)

180A. University Ethics Bowl Team

Participation in the Santa Clara University Ethics Bowl Team, including in-depth weekly analyses of cases in applied ethics, culminating in a regional or national debate. Students will be required to study background facts, key definitions, relevant moral principles, and methods of applying those principles to answer questions about the applied ethics cases. Field trips required. (5 units, may be repeated as PHIL 180B for 1 unit)

197. Senior Research Thesis

Creation of a carefully researched and scholarly paper, under the active direction of a selected member of the department's staff. Of particular value to senior students who intend to pursue graduate studies. *Prerequisites: Previous arrangement with instructor and department chair.* (5 units)

199. Directed Research

Tutorial work with demanding requirements for advanced students in particular problem areas not otherwise accessible through courses. *Prerequisites: Previous arrangement with the instructor and department chair.* (2–5 units)

DEPARTMENT OF PHYSICS

Professor Emeritus: William T. Duffy Jr.
Professors: Richard P. Barber Jr., Betty A. Young (*Department Chair and Lee and Seymour Graff Professor II)*
Associate Professors: John T. Birmingham, Philip R. Kesten, Guy Ramon, Christopher P. Weber
Lecturer: Kristin Kulas

The Department of Physics offers major programs of lecture and laboratory instruction leading to the bachelor of science in physics, the bachelor of science in physics with a biophysics emphasis, and the bachelor of science in engineering physics. The department also provides an academic minor in physics and required and elective courses for students majoring in other fields.

The usual career goal of a physics major is professional scientific employment in industry or government, by a university, or in a secondary school teaching physical science. The undergraduate major program in physics is appropriate preparation for graduate study in physics, astronomy and astrophysics, biophysics, environmental science, geological science and geophysics, medical physics and medicine, patent law, oceanography, and other fields.

The physics major with a biophysics emphasis (newly implemented in 2015–2016) provides a solid preparation for graduate studies and for nearly all of the postgraduate opportunities open to traditional physics majors. Students who complete the biophysics emphasis will have additional opportunities in medicine, the life sciences, and related industries.

The engineering physics major is particularly appropriate for the applied science student who intends to do research and development, and/or attend graduate school in physics, applied physics, or various engineering disciplines. The engineering physics major covers a broad spectrum of courses in mathematics, engineering, and physics. This program emphasizes, to a greater extent than the traditional engineering major, the physics fundamentals that are applicable to new technologies as well as to the more established ones.

Research in the department currently is funded by the National Science Foundation, NASA, and the Department of Energy. Majors in physics and engineering physics participate in faculty research projects through PHYS 198 (Undergraduate Physics Research). Advanced students also have opportunities for part-time employment assisting faculty in laboratory and related teaching activities.

A student whose GPA is below a 2.5 must obtain approval from the department chair to declare a Physics or Engineering Physics major.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science degree in physics, students majoring in physics or engineering physics must complete the following departmental requirements:

Major in Physics

- CHEM 11
- MATH 11, 12, 13, 14,
- MATH 22 or AMTH 106
- PHYS 31, 32 or PHYS 11, 12
- PHYS 33, 34, 70, 103, 111, 112, 120, 121, 122, 151
- One lower-division elective chosen from CHEM 12, BIOL 21, MECH 15, CSCI 10, COEN 10, COEN 11, COEN 44, COEN 45
- Three upper-division electives, at least one being a laboratory course (L), chosen from PHYS 104, 113(L), 116, 123(L), 161, 162, 171

Emphasis in Biophysics (Major in Physics)

- BIOL 21, 24, 25
- CHEM 11, 12, 13, 31, 32 (33 recommended)
- MATH 11, 12, 13, 14
- MATH 22 or AMTH 106
- PHYS 31, 32 or PHYS 11, 12
- PHYS 33, 34, 70, 103, 111, 120, 171
- PHYS 121 or CHEM 151
- Two upper-division electives chosen from PHYS 112, 113(L), 116, 122, 123(L), 151(L); BIOL 122(L), 124(L) or 129, 175(L); CHEM 141, 143(L), 150, 154(L); BIOE 154, 155, 161(L), 162(L), 163(L), 167, 168, 172(L)

Note: CHEM 33 is required for pre-health. CHEM 141 and a course in statistics (MATH 8 or BIOL 160L are recommended for pre-health).

Major in Engineering Physics

- CHEM 11, 12
- MATH 11, 12, 13, 14
- AMTH 106 or MATH 22
- One course chosen from CSCI 10, COEN 10, 11, 44, or 45
- PHYS 31, 32, 33, 34, 70, 103, 111, 112, 121
- One upper-division physics elective chosen from PHYS 104, 113, 116, 122, or 151
- PHYS 120 or MECH 121

- At least four courses chosen from MECH 15; MECH 143 or ELEN 123; ELEN 110, 115; COEN 21 or ELEN 21; MECH 122 or 132 or 266
- An approved cluster of technical courses (typically five) in one of several emphasis areas including computational, electronics, materials science, solid state, and mechanical

Note: PHYS 116 is taught as a capstone and, although not required, is highly recommended for engineering physics majors. MATH 53 is recommended for both majors. PHYS 151 fulfills the third Core Writing requirement. The combination of PHYS 103 and PHYS 192 fulfills the STS Core requirement.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in physics:

- PHYS 31, 32, 33, 34
- Four approved upper-division courses, excluding PHYS 190, 192, 198, 199

LOWER-DIVISION COURSES

1. Hands-On Physics!

How do scientists know what they "know?" Notions of scientific theory and experimentation are reviewed. Error analysis and instrumentation are emphasized. Includes student-designed, peer-reviewed group projects. (4 units)

2. Introduction to Astronomy: The Solar System

An introduction to astronomy with a particular focus on the origin and evolution of the solar system, planets, and their satellites. Topics include a brief history of the science of astronomy, telescopes and observational methods, gravitation, spectra and the sun, asteroids, comets, astrobiology, and searches for new planetary bodies and extraterrestrial life. Special emphasis is given to the Earth as a planet, with comparisons to Mars and Venus. Students should be familiar with arithmetic and basic algebra. Evening observational lab meets five times during the quarter. (4 units)

3. Introduction to Astronomy: The Universe

An introduction to astronomy with a particular focus on the origin and evolution of the universe, galaxies, and stars. Topics include a brief history of the science of astronomy, telescopes and observational methods, gravitation, spectra and the sun, black holes, nebulae, the big bang, and the expansion and ultimate fate of the universe. Special emphasis is given to theories of the cosmos from Stonehenge to the present. Students should be familiar with arithmetic and basic algebra. Evening observational lab meets five times during the quarter. (4 units)

4. The Physics of Dance

An exploration of the connection between the art of dance and the science of motion with both lecture/discussion sessions and movement laboratories. Topics include mass, force, equilibrium, acceleration, energy, momentum, torque, rotation, and angular momentum. Movement laboratory combines personal experience of movement with scientific measurements and analysis, in other words: "dance it" and "measure it." This is a lab science course, not a dance technique course. *Also listed as DANC 4.* (4 units)

5. The Physics of Star Trek

Examines the physics and other science depicted in the *Star Trek* television shows and movies. Topics include Newton's and Einstein's physics, the Standard Model of particle physics, and the physics that underlies inertial dampers, transporter beams, warp drive, and time travel. Considers the impact on society of interplanetary and intergalactic travel, including the relationship between the space program and the advance of technology, the political ramifications of mankind's race to space, and the implication of the discovery of extraterrestrial life on religion and faith. (4 units)

8. Introduction to Space Sciences

An introduction to space exploration and how observations from space have influenced our knowledge of Earth and of the other planets in our solar system. This is synthesized within the context of the field of astrobiology, an interdisciplinary study of the origin of the Universe, and the evolution and future of life on Earth. (4 units)

9. Introduction to Earth Science

Overview of geology and its significance to man. Earthquakes, volcanism, plate tectonics and continental drift, rocks and minerals, geologic hazards, and mineral resources. Emphasis on basic geologic principles and the role of geology in today's world. Lab. (4 units)

11. General Physics I

One-dimensional motion. Vectors. Two-dimensional motion. Newtonian laws of motion. Law of gravitation. Planetary motion. Work. Kinetic and potential energy. Linear momentum and impulse. Torque and rotational motion. Rotational energy and momentum. Equilibrium. Elastic deformation of solids. Density and pressure of fluids. Bernoulli's principle. Buoyant forces. Surface tension. Lab. *Prerequisite: MATH 11, 12, 13, or 14 or permission of the instructor. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units)

12. General Physics II

Temperature. Thermal expansion of solids and liquids. Thermal energy. Heat transfer. Specific heat. Mechanical equivalent of heat. Work and heat. Laws of thermodynamics. Kinetic theory of gases. Ideal gas law. Entropy. Vibration and wave motion. Hooke's Law. Sound. Electric charges, fields, and potential. Gauss's Law. Ohm's Law. Potential difference. Electric potential. Capacitors. Electric current. Resistance and resistivity. Electric energy and power. Kirchhoff's Rules. RC circuits. Magnetic fields and forces. Ampere's Law. Induced EMF. Faraday's Law. Lenz's Law. Self-inductance. Lab. *Prerequisite: PHYS 11. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units)

13. General Physics III

RCL series circuit. Power in an AC circuit. Resonance. Transformers. Optics: reflection, refraction, mirrors, and lenses. Total internal reflection. Diffraction. Young's double slit interference. Polarization. Optical Instruments. Relativity. Wave-particle duality. Photoelectric effect. X-rays. Pair production and annihilation. Bohr Atom. Spectra. Uncertainty principle. Quantum numbers. Radioactivity. Nuclear particles and reactions. Subnuclear particles. Lab. *Prerequisite: PHYS 12. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units)

19. General Physics for Teachers

A primarily conceptual general physics course designed for future teachers. Topics covered include scientific inquiry, mechanics, gravitation, properties of matter, heat, sound, electricity and magnetism, light, relativity, atomic and nuclear physics, and astronomy. (4 units)

31. Physics for Scientists and Engineers I

Measurement. Vectors. Straight-line kinematics. Kinematics in two dimensions. Laws of inertia, mass conservation, and momentum conservation. Center-of-mass and reference frames. Force. Newtonian mechanics and its applications. Work and kinetic energy. Potential energy and energy conservation. Rotational dynamics. Statics. Includes weekly laboratory. *Prerequisite: MATH 11, 12, 13, or 14. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units)

32. Physics for Scientists and Engineers II

Simple harmonic motion. Gravitation. Kepler's Laws. Fluids. Waves. Sound. Interference, diffraction, and polarization. Thermodynamics. Includes weekly laboratory. *Prerequisites: MATH 12, 13, or 14 and PHYS 31. (MATH 12 may be taken concurrently.) The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units)

33. Physics for Scientists and Engineers III

Electrostatics. Gauss's Law. Potential. Capacitance. Electric current. Resistance. Kirchhoff's rules. DC circuits. AC circuits. Magnetic force. Ampere's Law. Electromagnetic induction. Includes weekly laboratory. *Prerequisites: MATH 12, 13, or 14 and PHYS 32. (MATH 13 may be taken concurrently.) The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units)

34. Physics for Scientists and Engineers IV

Special relativity. Historical development of modern physics: black body radiation, photoelectric effect, Compton scattering, X-rays, Bohr atom, DeBroglie wavelength, Heisenberg uncertainty principle. Quantum waves and particles. Schrödinger equation. Nuclear structure and decay. Particle physics. Introduction to semiconductors. Includes weekly laboratory. *Prerequisite: PHYS 33.* (5 units)

70. Electronic Circuits for Scientists

Linear electric circuits. DC analysis, network theorems, phasor AC analysis. Diode circuits. Physics of p-n junction. Junction diodes, field-effect devices, bipolar junction transistors. Elementary amplifiers. Small-signal device models. Logic gates, digital integrated circuits, Boolean algebra, registers, counters, memory. Operational amplifier circuits. Linear amplifier bias circuits. Includes weekly laboratory. *Prerequisite: PHYS 33.* (5 units)

UPPER-DIVISION COURSES

103. Numerical Methods in Physics

Basic elements of programming in MATLAB®. Ordinary and partial differential equations. Fourier transforms and spectral analysis. Linear regression and curve fitting. Numerical integration. Stochastic methods. Selected applications include planetary motion, diffusion, Laplace and Poisson equations and waves. Weekly computer lab. *Prerequisite: MATH 22 or AMTH 106.* (5 units)

104. Analytical Mechanics

Calculus of variations. Hamilton's principle. Lagrangian and Hamiltonian approaches to classical dynamics. Central force motion. Noninertial reference frames. Dynamics of rigid bodies. Selected topics in classical dynamics such as coupled oscillators, special relativity, and chaos theory. *Prerequisites: PHYS 31 and MATH 22 or AMTH 106.* (5 units)

111. Electromagnetic Theory I

Review of vector calculus. Dirac delta function. Electrostatic fields. Work and energy. Laplace and Poisson equations. Separation of variables. Fourier's trick. Legendre equation. Multipole expansion. Computational problems. *Prerequisites: PHYS 33 and MATH 22 or AMTH 106. Co-requisite: PHYS 103.* (5 units)

112. Electromagnetic Theory II

Magnetostatics. Induced electromotive forces. Maxwell's equations. Energy and momentum in electrodynamics. Electromagnetic stress tensor. Electromagnetic waves. Potential formulation. Computational problems. Dipole radiation. *Prerequisite: PHYS 111.* (5 units)

113. Advanced Electromagnetism and Optics

Geometric optics. Polarization and optically active media. Interferometry. Optical signal and noise in detection and communication. Interaction of light with metals, dielectrics, and atoms. Thermal radiation. Laser operation. *Prerequisite: PHYS 112.* (5 units)

116. Physics of Solids

Crystal structure. Phonons. Free electron theory of metals. Band theory of solids. Semiconductors. Electrical and thermal transport properties of materials. Magnetism. Superconductivity. Topics from current research literature. PHYS 116 is taught as a capstone course. *Prerequisites: PHYS 120, PHYS 121, and senior standing.* (5 units)

120. Thermal Physics

Laws of thermodynamics with applications to ideal and non-ideal systems. Elementary kinetic theory of gases. Entropy. Classical and quantum statistical mechanics. Selected topics from magnetism and low-temperature physics. *Prerequisites: PHYS 34 and PHYS 103. Recommended: PHYS 121.* (5 units)

121. Quantum Mechanics I

The Schrödinger equation. The wave-function and its interpretation. One dimensional potentials. Harmonic oscillator. Methods in linear algebra including matrix operations, unitary transformations and rotations, eigenvalue problems and diagonalization. Hilbert space, observables, operators, and Dirac notation. The hydrogen atom. *Prerequisites: PHYS 34 and PHYS 103.* (5 units)

122. Quantum Mechanics II

Angular momentum and spin. Electrons in EM field. Addition of angular momenta. Identical particles. Time-independent perturbation theory. Fine and hyperfine structure. Time-dependent perturbation theory and its application to light-matter interaction. Fermi's golden rule. *Prerequisite: PHYS 121.* (5 units)

123. Quantum Mechanics III

Variational principle. WKB approximation. Scattering theory. Quantum paradoxes. Introduction to quantum computation: qubits, quantum gates and circuits, quantum teleportation, quantum algorithms, error correction codes. Quantum computer implementations. Includes weekly laboratory. *Prerequisite: PHYS 122.* (5 units)

141. Modern Topics in Physics

A selection of current topics in physics research. (5 units)

151. Advanced Laboratory

Laboratory-based experiments in the areas of atomic, nuclear, and quantum physics. Emphasis on in-depth understanding of underlying physics, experimental techniques, data analysis, and dissemination of results. Design and implementation of independent tabletop project. Introduction to LabVIEW™. Written and oral presentations. *Prerequisite: Senior standing.* (5 units)

161. Introduction to Astrophysics

A survey of astronomy for science majors focused on the physics and mathematics that astronomers use to interpret observations of planets, stars, and galaxies. Topics include the kinematics of objects in the solar system, the nature of stars and their evolution, and the evolution and formation of galaxies. *Prerequisite: PHYS 33. PHYS 34 recommended but not required.* (5 units)

162. Cosmology

A survey of cosmology for science majors. Much of course will focus on the properties of an idealized, perfectly smooth, model universe. Topics include the formation of galaxies and clusters in an evolving universe, the Benchmark Model of the universe, Dark Matter and Dark Energy, the Cosmic Microwave Background and its fluctuation spectrum, recent results from such experiments as WMAP and Planck, Big Bang nucleosynthesis, and problems with the standard Big Bang models and inflation theory. *Prerequisites: PHYS 34 or PHYS 161. Knowledge of calculus through differential equations is assumed.* (5 units)

171. Biophysics

Diffusion and dissipation in cells. Friction and inertia in biological systems. Entropic and chemical forces. Macromolecules. Molecular machines. Ion pumps. Nerve impulses. *Prerequisite: PHYS 33.* (5 units)

190. Senior Seminar

Advanced topics in selected areas of physics. *Enrollment by permission of instructor.* (2 units)

192. Physics and Society

Physics research that has a significant societal impact presented by invited speakers from academia, the private sector, and government laboratories. Students participate in discussions and write reflection papers. *Prerequisite: PHYS 34.* (1 unit)

198. Undergraduate Physics Research

Departmental work under close professorial direction on research in progress. *Permission of the professor directing the research must be secured before registering for this course.* (1–5 units)

199. Directed Reading in Physics

Detailed investigation of some area or topic in physics not covered in the regular courses; supervised by a faculty member. *Permission of the professor directing the study must be secured before registering for this course.* (1–5 units)

DEPARTMENT OF POLITICAL SCIENCE

Professor Emerita: Janet A. Flammang
Professors: Jane L. Curry, Dennis R. Gordon (*Department Chair*), Eric O. Hanson (*Patrick A. Donohoe, S.J. Professor*), Timothy J. Lukes, Peter I. Minowitz, Terri L. Peretti, William J. Stover
Associate Professors: Elsa Y. Chen, Gregory P. Corning, James S. Lai, Farid D. Senzai
Assistant Professors: Anne E. Baker, Naomi Levy
Senior Lecturer: Diana Morlang
Lecturer: Kenneth Faulve-Montojo

The Department of Political Science offers a degree program leading to the bachelor of science in political science. The department introduces students to the analysis of political behavior, values, institutions, and governments. It also offers preparation for various graduate and professional studies and for careers in public service.

The department makes available opportunities to participate in a variety of programs that combine practical field experience and academic credit. It assists students in arranging academic credit for internships in local politics. Students may work for government agencies, legislative or judicial bodies, political parties, or politically related groups. The department regularly offers courses that combine local internships with classroom work. On the national level, Santa Clara is a member school of American University's Washington, D.C., program, in which students receive credit for internships and intensive seminars at the nation's capital. Santa Clara also participates in the Panetta Institute's Congressional Internship Program, which fully subsidizes students who study and intern with the California Congressional delegation on Capitol Hill. On the international level, the department encourages student participation in the numerous University-operated and approved study abroad programs, especially those with internships. See the Domestic Public Sector Studies Programs section in Chapter 2 for additional details on public sector programs.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in political science must complete the following departmental requirements:

- Two mathematics courses from the following: MATH 6 and 8, MATH 6 and 11, MATH 8 and 11, MATH 11 and 12, MATH 30 and 31, or other approved combination
- POLI 1; 2 or 3; 25; 30; 40 (ECON 1 may be substituted for POLI 40); and 99.
- Seven upper-division courses in political science, including one lecture course from each of the following five areas: United States politics, comparative politics, international relations, political philosophy, and applied quantitative methods (Environmental Science and Environmental Policy majors may substitute ENVS 110 for POLI 101); a sixth upper-division course from any of these subfields; and a political science seminar taken after achieving senior status or with the permission of the instructor.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in political science:

- Any three lower-division political science courses (POLI 1, 2 or 3, 25, 30, 40, 45, 50, 55, 99)
- Any three upper-division 5-unit political science courses
- One additional upper- or lower-division political science course

HONORS PROGRAM

The political science honors program enhances the regular major by providing a more specialized course of study to prepare highly qualified students for graduate study. All majors who are not seniors and who have completed at least two of the lower-division sequence of courses (1, 2 or 3, 25, 30, 40, 99) with a grade point average of 3.0 or better are eligible to apply. A maximum of 15 students from each class are admitted. Admission is determined on the basis of coursework, recommendations, and a personal interview with the faculty director. Honors students are expected to participate in various department-sponsored events, and a representative from the program has full voting status in the deliberations of the department faculty. Participants in the program must complete a senior thesis, fulfill one of three supplemental curriculum requirements (a minor or a second major, ECON 1 and 2, or language 21 and 22), and take a highly active role in department affairs.

OPTIONAL EMPHASES

Political science majors may select an emphasis in pre-law, public sector studies, or international relations, which will be noted on the student's transcript. Recommended courses for completing the three emphasis options are available on the department's website.

Emphasis in Public Sector Studies

The public sector emphasis is a specialized area of concentration within the political science major allowing students to focus their coursework toward public sector studies. The emphasis is designed to provide a closer look at the creation, implementation, and analysis of public policies, and the operation of governments and public organizations. The public sector emphasis provides an excellent foundation for those who would like to pursue careers or graduate studies in public policy, public administration, public affairs, urban planning, and law. Requirements for the public sector emphasis include a variety of courses both inside and outside of the political science department. For the most up-to-date information about the public sector emphasis, see http://www.scu.edu/cas/politicalscience/academicinformation/.

- ECON 1 and 2
- POLI 167 with a grade of C or better
- Upper-division POLI internship: POLI 198A, 198B, 198, or equivalent, including Washington Semester Program internships
- Upper-division POLI course for public sector: POLI 152, 153, 154, 158, 159, 160, 161, 162, 163, 165, 166, 168

- Two additional lower-division courses from POLI 45; ACTG 11, 12, 20; BUSN 71; CENG 5; COMM 2, 20; ECON 3; ELSJ 50; ENVS 10, 11, 12, 20; MGMT 6; PHIL 8, 9, 10; PHSC 1, 2; SOCI 33, 65; RSOC 49; or others as approved
- Two additional upper-division courses (outside of the political science department) from ANTH 151; BIOL 171; COMM 120A, 124B, 162A; ECON 111, 113, 114, 115, 120, 126, 127, 129, 136, 137, 150, 155, 156, 160, 166, 173, 181, 182, 185, 190; EDUC 106; ENGL 185; ENVS 115, 120, 122, 147, 162; HIST 176; MGMT 169, 171; PHIL 109, 111, 113, 119; PSYC 134; SOCI 132, 137, 138, 140, 153, 159, 160, 161, 165, 170, 172, 176, 180; or selected courses from the Washington Semester Program or others as approved by the program director

Emphasis in International Relations

The international relations emphasis allows students to focus on the international system and the interaction of national and non-national actors on the global stage. Sample topics addressed by the international relations emphasis include international organizations; transnational movements; conflict resolution, peace, and reconciliation; military-strategic issues; international political economy; human rights; development and economic justice; and global sustainability.

Requirements for the international relations emphasis include a variety of courses both inside and outside of the political science department. For the most up-to-date information about the international relations emphasis, see http://www.scu.edu/cas/politicalscience/academicinformation/.

- Senior seminar: POLI 196 (International Relations) or POLI 192 (Comparative Politics)
- Two additional upper-division POLI five-unit international relations classes from POLI 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128. One may count for upper-division elective
- One lower- or upper-division international relations-related course outside the department from ECON 3, 129ES, 129BF, 137, 181, 182; ENVS 147; GERM 111; HIST 105,107,124, 131, 135, 138, 141, 142, 144S, 145, 151, 154B, 155, 163; TESP 159, 162, 182R; SOCI 133, 134; RSOC 38; or other courses as approved by the program director
- One off-campus academic experience with an international component: Study Abroad, Washington Semester Program, Arrupe/Kolvenbach internship or community-based learning, or local internship

Emphasis in Pre-Law

Political science is one of the most common majors for pre-law students. After all, political science is the closest of all majors to the institutions and values with which law deals. The primary study of law is the state, and so too for political science. Additionally, the demands of political science courses (reading of complex texts, independent research, frequent class presentations, and demanding writing assignments) strengthen the analytical and communications skills that the practice of law requires.

Requirements for the pre-law emphasis include a variety of courses from both inside and outside of the political science department. At most, six courses are required: three within the political science department and three from outside the political science department, although many of these courses fulfill other Core and political science major requirements.

For the most up-to-date information about the pre-law emphasis and specific courses, see http://www.scu.edu/cas/politicalscience/academicinformation/.

- Three courses from List A: POLI 45, 124, 125, 127, 159, 160, 161, 167, 168, 169P, 171, 185P/195P; POLI 198A or B (internship classes must be approved by the pre-law program director)
- One course from List B: PHIL 10, 29, 111, 113, 114, 154; ECON 126; PSYC 155; COMM 170A; ANTH 151; SOCI 159, 160, 176; TESP 114; ELSJ 50; ENVS 120
- One course from List C: PHIL 25; ENGL 79, 176, 177
- One additional course from either List B or List C

LOWER-DIVISION COURSES

1. Introduction to U.S. Politics

Critical analysis of U.S. political values, institutions, and processes. The U.S. political tradition, the Constitution, the presidency, Congress, the bureaucracy, Supreme Court, elections, political parties, interest groups, mass media, political opinion and participation, domestic policies, and foreign policy are examined in depth. (4 units)

2. Introduction to Comparative Politics

Government and politics in several states. Emphasis on the development of analytical abilities and critical skills in the evaluation of political culture, processes, and institutions. (4 units)

3. Introduction to World Politics

Compares the political cultures, processes, and institutions of China, India, and Mexico. The student fulfills an Arrupe Placement with an immigrant client from a Confucian, South Asian, or Latin American country. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (4 units)

25. Introduction to International Relations

Conceptual models used to analyze international relations, contemporary problems of world politics, and the methods states employ to provide peace and security. Some sections include an interactive computer simulation to apply conflict resolution principles. (4 units)

30. Introduction to Political Philosophy

An exploration of some of the principal themes and questions of political philosophy through the writings of authors such as Plato, Machiavelli, Marx, and Mill. Prominent themes include theory and practice, individual liberty, morality and politics, freedom, obligation, and justice. (4 units)

40. Politics of U.S. Economic Policies

Covers basic concepts in microeconomics, macroeconomics, and international economics in order to demonstrate the relationship between the science of economics and the politics of U.S. economic policies. Case studies such as poverty issues, agricultural policies, and immigration and international trade dynamics will demonstrate how economic and political issues, as well as domestic and international policies, are interrelated. (4 units)

45. Criminal Justice System

Basic understanding of the U.S. criminal justice system: police, courts, probation, imprisonment, parole, and relations with other governmental agencies. Goals, successes, and failures of the system, and possible remedies. (4 units)

50. World Geography

Provides an understanding of world geography through an appreciation of contemporary global problems in different world regions. Broad topics that will be covered include globalization, demographic trends, economic development and underdevelopment, human-environment interactions, changing cultures, and geopolitics. These topics will illustrate the distribution of political, cultural, socioeconomic, and physical processes and features around the world and will be covered at different scales: local, regional, and global. *Also listed as ANTH 50 and ENVS 50.* (4 units)

55. Cross-Racial Electoral Politics

Examination of the historical and contemporary political movements among the major minority groups in the United States since the 1960s. The origins and goals of the Black Power movement, the Chicano/a movement, the Asian-American movement, and the Native American movement will be focused on during the quarter. Each of these movements embodies similar and different trails with regard to their respective group's quest for political power and elected representation. Due to the contemporary immigration trends, Latinos and Asian Americans have challenged the black-white paradigm that has traditionally defined U.S. racial politics in local- and state-level politics. The result, in some instances, has been interracial competition and conflict at these levels. The necessary elements needed to build and to sustain multiracial coalitions along with what the political future holds for these minority groups will be addressed. *Also listed as ETHN 55.* (5 units)

99. Political Science Research

This course provides the necessary tools to understand, critically evaluate, and perform political science research. Students will learn how to conduct a literature review, produce an annotated bibliography, and propose a theoretically informed research design. Topics include case selection; measurement of variables; hypothesis testing; qualitative research methods including interviews, content analysis, and ethnography; survey research; and interpretation and presentation of charts and tables. (4 units)

Note: Upper-division courses in each area below have required prerequisites as noted in each section. In special cases, the instructor of a particular course may make an exception to the requirements. It is recommended that majors complete POLI 99 before undertaking upper-division course work in Political Science.

UPPER-DIVISION COURSE: APPLIED QUANTITATIVE METHODS

Note: POLI 99 is a required prerequisite for POLI 101.

101. Applied Quantitative Methods

An applied introduction to statistical techniques that are especially relevant to data from the social sciences. (5 units)

UPPER-DIVISION COURSES: POLITICAL PHILOSOPHY

Note: POLI 30 is a required prerequisite for upper-division political philosophy courses.

105. Special Topics in Political Philosophy

Selected topics in political philosophy. (5 units)

107. American Political Thought

Selected topics and themes in the history of American political thought. (5 units)

111. History of Political Philosophy I: Greek and Christian

Development of Western political thought from its Greek origins in the work of Plato and Aristotle through the work of Aquinas. (5 units)

112. History of Political Philosophy II: Liberalism and Its Roots

Western political thought from Machiavelli through the origins of liberalism in the writings of Hobbes, Locke, and Rousseau. (5 units)

113. History of Political Philosophy III: Post-Liberal Theories

Writers and themes in 19th- and 20th-century political thought including Marx, Nietzsche, Freud, and Lenin. (5 units)

UPPER-DIVISION COURSES: INTERNATIONAL RELATIONS

Note: POLI 25 is a required prerequisite for upper-division international relations courses.

116A. Model United Nations Prep

Model United Nations (UN) is a simulation program in which students participate in mock sessions of the United Nations. POLI 116A is a preparatory course for the Model UN conference in spring quarter. Students will learn about the principles of international law and conflict resolution. (2 units)

116B. Model United Nations: International Conflict Simulation

Simulated United Nations sessions, representing member-nations, debating and preparing resolutions, and engaging in other aspects of diplomacy. *Prerequisite: POLI 116A.* (2 units)

117. International Humanitarian Action

Explores the role of intergovernmental organizations (IGOs) and nongovernmental organizations (NGOs) in the humanitarian crises around the globe. Activities include research and conflict resolution simulation. By acting as members of international organizations involved in human tragedy, students experience simulated civic engagement on an international level and analyze the global community's Responsibility to Protect doctrine. They come to understand and act in an aid system where many organizations face constraints and opportunities to effect change in countries suffering and recovering from conflict and humanitarian disaster. (3 units)

118. The Cold War

Case study of the critical conflict of the 20th century to understand the interaction of foreign and domestic politics, the development of current international politics, and the ways in which political ideology and conflict influence people and nations. (5 units)

119. The European Union

Evolution of European political, social, and economic integration in the postwar period. Emphasis on the institutions and politics of the European Union since the Maastrict treaty, and current issues of European integration, such as the addition of new members, monetary union, and internal democratization. (5 units)

120. Mass Media, Information Technology, and International Politics

Use of computer-based simulations and multimedia sources to understand international negotiation and foreign policy decision making. (5 units)

121. International Political Economy

An introduction to the politics and institutions of the world economy. Topics include competing theories of international political economy (IPE); regionalism and globalization; the international trading and financial systems; multinational corporations; development and debt. (5 units)

122. East Asian International Relations

An overview of the political, economic, and security dimensions of international relations in Northeast Asia with a focus on the foreign policies of China, Japan, and the United States. *Prerequisite: POLI 2 or 25.* (5 units)

123. Global Environmental Politics

Explores the political, social, scientific, and economic challenges in the pursuit of a just and sustainable global environment. Case studies are drawn from around the world with a focus on national, intergovernmental, and nongovernmental actors and social forces. (5 units)

124. Law, Security, and Force

An examination of traditional international legal principles involving the use of force in self-defense with case studies to understand how the justification of armed conflict is changing. Discussion of the international community's adjustment to the evolving nature of sovereignty, increasing globalization, and national defense. (5 units)

125. International Law

Sources, nature, and function of international law in world politics. Special attention to the subjects of international law, international transactions, and the rules of war. Viewpoints presented from Western and non-Western perspectives. (5 units)

126. International Organization

International organization in world affairs. Political, economic, and social role of the United Nations, regional organizations, specialized agencies, and nonstate transnational actors. (5 units)

127. Special Topics in International Relations

Selected topics in international relations. (5 units)

128. U.S. Foreign Policy

Aims, formulation, and implementation of U.S. foreign policy since World War II, focusing on diplomacy, war, security, and trade. (5 units)

UPPER-DIVISION COURSES: COMPARATIVE POLITICS

Note: Either POLI 2 or 3 is a required prerequisite for upper-division comparative politics courses.

131. The Military and Politics

Case study of wars in Vietnam to understand civil-military relations, the causes of military intervention, legitimacy-building efforts, and withdrawal from politics. (5 units)

132. Transnational Political Movements

Examines the various forms and dynamics of organizations, activists, and movements that engage in collective action to transform institutional policies and practices across nation-state boundaries. Explores how social movements, international protests, and NGOs interact with nation-state governments as well as economic and cultural institutions and why certain communities engage in transnational political contention. Designed to be a collective learning experience in which students examine and interrogate scholarship about social movements, globalization, and identity in transnational perspective. (5 units)

133. Political Parties, Elections, and Policy

An examination of how parties and elections mobilize people, what determines election victories, and how parties and elections affect state and national government policies. A focus on United States politics in contrast to the processes in democracies in Western and Eastern Europe. Students will be engaged in an on-campus simulation of an election. (5 units)

134. Race and Ethnicity in the Politics of Developed States

An examination of the role of and attempts to deal with racial/ethnic identity and conflict in the politics of the United States, South Africa, the former Soviet Union, Yugoslavia, and Western Europe. (5 units)

136. Politics in Central America and the Caribbean

Political cultures, processes, and institutions of selected Central American and Caribbean states. Governmental organization, sustainable development, diplomacy, and social change. (5 units)

137. Politics in South America

Political cultures, processes, and institutions of selected South American states. Governmental organization, sustainable development, diplomacy, and social change. (5 units)

139. Religion and Politics in the Developing World

A comparison of the relationships between religion and politics in Asia, Latin America, and the Middle East. Emphasis on the current political influence of traditional organization and belief. (5 units)

140. Politics in Less-Developed Countries

Multidisciplinary study of the problems and politics of political development in Latin America, Africa, and/or Asia. Case studies of communist and capitalist approaches to political development. Impact of international politics on internal development. (5 units)

142. Politics in the Middle East

Designed to give students an understanding of the complexities of Middle East politics, the importance of the region to the world, and the role history and religion have played in the political and social development of the various countries in the region. (5 units)

143. Democracy and Democracy Building

Designed to give students an understanding of theories of democracy and how democracies are built out of military defeat (Germany and Iraq) and internal change either by leaders relinquishing power or popular uprising. Course includes reports of participants about decision making in democratizing processes. (5 units)

144. European Politics

An examination of European politics in the postwar era through political parties and institutions. Evaluation of current challenges facing European governments such as immigration, changing welfare states, regional diversity, and an expanding European Union, using national comparisons. (5 units)

145. Politics of Former Communist States

An examination of transitions of the diverse states of the former Soviet Union and East Europe, with a focus on differences in transitions, progress toward democracy, and the impact on people's attitudes and lives. Students will work with their peers from these countries. (5 units)

146. African Environment and Development

Examines how history, politics, and policies have shaped the contemporary political, social, and cultural dimensions of development and environmental challenges in sub-Saharan Africa. Special topics include the politics of natural resource use, the causes of hunger and famine, problems of conservation and environment, environmental health and gender, and development. *Also listed as ENVS 149.* (5 units)

148. Politics in China

Origins of revolution in modern China, the politics of social and economic modernization in China since 1949, the problems of bureaucratization, political participation, and the succession to Deng Xiaoping. (5 units)

149. Special Topics in Comparative Politics

Selected topics in comparative politics. (5 units)

149L. Special Topics in Comparative Politics: British Politics

This is an introductory course on contemporary British politics offered in London. The overall objective of the course is to provide students in a systematic fashion with the basic understanding of the British system of government and political process, as well as the socio-historical processes that have shaped modern Britain. Topics to be discussed include the Monarchy, the Parliament, political parties, the Prime Minister, political ideology, and political culture. Throughout the course, comparisons with American politics and society will be made as a point of reference to provide a better framework for understanding British politics. *Prerequisite: None.* (5 units)

UPPER-DIVISION COURSES: UNITED STATES POLITICS

Note: POLI 1 is a required prerequisite for upper-division U.S. politics courses.

150. The Presidency

Analysis of the presidency as it has evolved throughout U.S. history. Comparison of presidential powers with those of Congress, the courts, the bureaucracy, the press, political parties, and the public. (5 units)

151. The Congress

History, structure, and policies of Congress. Congressional elections and theories of representation, the committee system and congressional norms, lobbying, congressional ethics and reforms, and the power of Congress relative to the president and the bureaucracy. (5 units)

152. Political Participation

An examination of who participates in U.S. politics and the various forms of political participation. Elections, political parties, interest groups, community organizing, and political protest. (5 units)

153. Minority Politics in the United States

Survey course with a focus on the historical and contemporary struggles of minority groups in the United States. The following minority groups are analyzed comparatively within a political and institutional context: African Americans, Latinos, Asian Americans, Native Americans, minority women, gays, and the disabled. This course examines various issues including theories of race, ethnicity, gender, and class to understand how these variables serve as a basis for identification and political mobilization in American politics. *Also listed as ETHN 153.* (5 units)

154. Women and Politics

A consideration of the various ways women have changed "politics as usual." Examination of the status of women today, varieties of feminist thought, women as voters and as an interest group, women in public office, and public policy issues. *Also listed as WGST 180.* (5 units)

155. Political Psychology

This course serves as an introduction to the interdisciplinary field of political psychology, which applies theoretical ideas from psychology to understand political processes. Political psychology tends to focus on how politics works at the individual (micro) level. This course will focus on the psychological roots of public opinion and the political behavior of ordinary citizens through an application of psychological theories about personality, learning, cognition, emotion, social influence, and group dynamics to individuals' political attitudes and behaviors. (5 units)

156. Politics and Mass Media

An examination of the politics of the mass media, interactions between politicians and the media, the effects of mass media, and social media on political life and public opinion, concerns of racial and ethnic minorities, and the ethics of media work. (5 units)

157. Environmental Politics and Policy

This course examines environmental politics, policy, and governance in the last half century. Part one of this course reviews major environmental legislation in the United States including the Endangered Species Act, Clean Water Act, Clean Air Act, and policy responses to global warming. In part two, learners step back to interrogate the power dynamics, social movements, legal battles, and struggles over meaning and representation that accompany significant social change. The final section examines the rise of global environmental governance highlighting the role of nonprofit organizations, civil societies, and corporate firms as voluntary environmental regulation moves from the margins to the mainstream. A concluding discussion identifies avenues for civic engagement, accountability, and environmental citizenship. Learners will gain insight into the policymaking processes by participating in simulation games, reading and research assignments, developing tools to assess policy outcomes, and finding strategies to identify political opportunities. *Prerequisite: ENVS 22 recommended. Also listed as ENVS 122.* (5 units)

158. Housing and Homelessness Policy

Substantive in-depth study of U.S. housing and homelessness policies. This course explores causes and correlates of homelessness such as poverty, unemployment, drug/alcohol addiction, mental illness, crime, disorder, HIV/AIDS, and lack of affordable housing. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (5 units)

159. The Constitution and Liberty

Constitutional law doctrines and decisions regarding civil, economic, and political liberties. Topics include free speech and association, freedom of the press, religious freedom, economic liberties and property rights, and privacy rights. (5 units)

160. The Constitution and Equality

Constitutional law doctrines and decisions regarding the 14th Amendment's guarantee of equal protection. Topics include race discrimination (particularly school desegregation and affirmative action), sex discrimination, discrimination against the poor, and discrimination based on sexual orientation. (5 units)

161. Law and Politics in the United States

Examination of the U.S. legal system. Topics include legal culture, the adversary system and its alternatives, system participants (litigants, lawyers, and judges), judicial selection, and legal versus political influences on judicial decision making. Special attention to the question of the capacity of courts to serve as agents of social change. (5 units)

162. Urban Politics

Examination of political processes in the U.S. city. Special attention to the structures and institutions of urban political power and the changing forms of political action. Discussion of the historical development of urban social life, political cultures, racial/ethnic and class communities, political economy, and urban planning. (5 units)

163. State and Local Politics

A consideration of the politics and processes of state and local governments, with particular attention given to California state, county, and municipal politics. Topics include federalism, executives, legislatures, courts, interest groups, parties, elections, financing, and issues such as education, welfare, criminal justice, transportation, housing, and urban growth. (5 units)

164. Studies in Public Policy

Selected topics and problems in public policy as viewed from a political insider's perspective. Taught by a political practitioner. (2 units)

165. Public Administration

Administration of public policies in terms of broad questions of democratic theory. Organizational theory, public employees, budget making, policy evaluation, and public finance. (5 units)

166. California Politics

An examination of the structures and processes of California politics: the state's constitution, legislature, governor, courts, and executive agencies. Special attention to democratic dilemmas of citizen participation (elections, ballot initiatives), legislative gridlock (redistricting, budget), and crucial policies (education, health and welfare, immigration, criminal justice, energy, and environment). (5 units)

167. Making Public Policy

An examination of the nature of U.S. public policy and policy analysis through the use of texts and case studies. Stages of policy development (how an idea becomes a policy, agenda setting, implementation, analysis, and evaluation). Ethical issues in public policy. (5 units)

168. Special Topics in Public Policy

Substantive in-depth study of selected issues in U.S. public policy such as health care, criminal justice, housing, and homelessness. Emphasis on the intersection of policy areas. *Arrupe placement required.* (5 units)

169. Special Topics in U.S. Politics

Selected topics in U.S. politics. (5 units)

171. Women and Law

Examines the legal status and rights of women in the United States through an intersectional lens. Principles such as equality, essentialism, privacy, and equal protection will be examined as will contemporary law and policy issues such as employment discrimination, sexual harassment, domestic violence, rape, reproductive justice, and family law. *Also listed as WGST 118.* (5 units)

172. Money and Politics

In politics, money talks. In this course, we will consider whether political money and the involvement of monied-interests in politics serve to advance or undermine democratic elections, political equality, freedom of speech, representation, and the production of sound public policies. (5 units)

180. Honors Research Projects

Independent research and writing on a selected topic or problem. *Enrollment restricted to students in the Political Science Honors Program.* (5 units)

UPPER-DIVISION COURSES: SENIOR SEMINARS

190. Seminar in Research Methods

Plan and conduct political science research on selected topics such as political communication and socialization. (5 units)

192. Seminar in Comparative Politics

Selected topics in comparative politics in various states and regions. (5 units)

193. Seminar in Political Philosophy

Selected topics in political philosophy. (5 units)

195. Seminar in U.S. Politics

Selected topics in U.S. politics. *Also listed as ETHN 185.* (5 units)

196. Seminar in International Relations

Selected aspects of international political behavior. (5 units)

UPPER-DIVISION COURSES: INTERNSHIPS AND INDEPENDENT STUDY

198. Public Service Internships

Directed internships in government agencies, legislative bodies, political parties, or interest groups, public or government affairs departments of corporations, or nonprofit organizations. *Open to qualified juniors or seniors with permission of the instructor.* (Variable units)

198A and B. Public Sector Study and Internship

Directed internships in local government agencies, legislative bodies, political parties, interest groups, public or government affairs departments of corporations, or nonprofit organizations, integrated with classroom analyses of professions in public sector, frequent guest speakers, and research projects. *Open to qualified juniors and seniors.* (5 units)

198EL. Public Sector Study and Internship

Directed internships in local government agencies, legislative bodies, political parties, interest groups, public or government affairs departments of corporations, or nonprofit organizations, integrated with classroom analyses of professions in public sector, frequent guest speakers, and research projects. Open to qualified juniors and seniors. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (5 units)

199. Directed Reading

Independent study. Intensive work in areas not fully covered in upper-division courses. *Prerequisite: A written outline of the proposed course, with required forms and all necessary signatures, must be submitted at least one week prior to registration.* (1–5 units)

DEPARTMENT OF PSYCHOLOGY

Professors Emeriti: Roland C. Lowe, Marvin L. Schroth, Eleanor W. Willemsen
Professors: Jerry M. Burger, Lucia Albino Gilbert, Tracey L. Kahan, Robert Numan, Thomas G. Plante (*Augustin Cardinal Bea, S.J., University Professor*), Kieran T. Sullivan (*Department Chair*), Timothy C. Urdan
Associate Professors: Matthew C. Bell, Patricia M. Simone
Assistant Professor: Yekaterina Bezrukova
Acting Assistant Professor: Kathryn Bruchmann

The Department of Psychology offers a degree program leading to the bachelor of science in psychology. Psychology is the study of behavior, emotion, and thought using the scientific method. At the undergraduate level, the study of psychology is part of a liberal education. A major in psychology lays the groundwork for various advanced studies, including the pursuit of graduate degrees needed for the professional practice of psychology.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in psychology must complete the following departmental requirements:

- PSYC 1, 2, 40, 43
- MATH 6 and 8 or MATH 11 and 8
- One course from PSYC 165, 166, 167
- One course from PSYC 172, 185, 196
- One course from PSYC 115, 117, 157
- One course from PSYC 150, 160
- One course from PSYC 120, 130, 131
- One advanced topics course from PSYC 111, 116, 118, 132, 133, 136, 151, 161, 168, 171, 178, or 199A
- Three additional approved upper-division psychology courses

Emphasis in Psychobiology

In addition to the bachelor of science and departmental requirements, students who wish to study neuroscience may elect the psychobiology concentration, which requires completing the following courses in addition to requirements for the major:

- MATH 11, 12
- CHEM 11, 12, 13, 31, 32
- BIOL 21, 22, 23, 24, 25

Emphasis in Gerontology

In addition to the bachelor of science and departmental requirements, students who wish to study the process of aging should inquire about the gerontology certificate program. For additional information, contact Dr. Patricia Simone, Director of Gerontology, at psimone@scu.edu.

LOWER-DIVISION COURSES

1. General Psychology I

The scientific study of behavior. Topics include the physiological basis of behavior, sensation and perception, learning, memory, motivation, and emotion. Other topics may include language, problem solving, intelligence, sleep and dreaming, and consciousness. *Prerequisites: None.* (4 units)

1H. Honors Colloquium

The honors version of PSYC 1. *Restricted to students in the University Honors Program.* (4 units)

2. General Psychology II

The scientific study of behavior. Topics include human development, personality, abnormal psychology, clinical intervention, and social psychology. Other topics may include psychological assessment, cross-cultural psychology, and psychological adjustment. *Prerequisites: None.* (4 units)

2H. Honors Colloquium

The honors version of PSYC 2. *Restricted to students in the University Honors Program.* (4 units)

40. Statistical Data Analysis

An introduction to statistical methods used in psychological research. *Prerequisites: Declared psychology major and MATH 8, or permission of instructor.* (4 units)

43. Research Methods in Psychology

Investigation of methods of psychological research and issues involved in the collection of data. Exercises require designing research projects, collecting data, and writing professional reports. *Prerequisites: PSYC 1 or 2 and 40, or permission of instructor.* (4 units)

50. Ways of Knowing

Personal experience, the scientific method, journalistic techniques, anthropological observation methods, intuition, and faith (religious, paranormal) are just a few of the ways of knowing that people use. This course explores each of these ways of knowing with the goal of answering the following questions: What are the strengths of each way of knowing? What are the limitations? Which method of inquiry is best for answering different types of questions? *Prerequisites: None.* (4 units)

65. Foundations of Behavioral Neuroscience

A basic introduction to brain structure and function. The course has standard lecture hours, but integrates hands-on laboratory experiential exercises during the class sessions. *Meets the Core Natural Science requirement. Prerequisites: None.* (4 units)

UPPER-DIVISION COURSES

102. Writing in Psychology

Development of writing, reading, critical thinking, and literature search skills within traditional formats for communicating scholarship in psychology. Covers the use of the American Psychological Association (APA) style for experimental reports and literature reviews. In addition to developing communication skills, assignments emphasize how to interpret experimental findings and evaluate support for hypotheses. Other assignments will require students to synthesize findings from several published studies and draw conclusions about a body of research. *Prerequisites: ENGL 1 and ENGL 2, PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

105. Statistics and Experimental Design II

Advanced topics in theory and methods of statistical analysis and experimental design. Complex analysis of variance and multiple correlation and regression are typically covered. *Prerequisite: By permission of the instructor only.* (5 units)

110. Advanced Research Methods

Students will learn the major research designs used in psychology and how to understand statistical results that come out of those designs. These include experimental designs, multiple linear and nonlinear regression, nonparametric analyses, multivariate ANOVA used with experimental designs, structural equation modeling, and small N designs. Students will learn how to read research reports using these designs, how to understand statistical results obtained from the designs, and how to communicate those results in passages that would belong in an APA-style report. The emphasis is on understanding the designs and results rather than on doing the analyses oneself. *Prerequisites: PSYC 1 or 2 and 43, or permission of instructor.* (5 units)

111. Advanced Topics in Motivation

Seminar exploring theories and research in motivation and emotion. Students will read, discuss, and critically analyze current empirical research and review articles in these areas. Topics emphasized will include cultural and individual variation in motivation and emotion, development of motivation and emotion, and the social, cognitive, and biological bases of motivation and emotion. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 112, and all lower-division psychology requirements, or permission of instructor.* (5 units)

112. Motivation and Emotion

Scientific study of the various motivational and emotional processes of people and higher animals. Biological drives, psychological survival needs, altered states of consciousness, social motives, and theories of emotion. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

114. Ethics in Psychology

The role of ethical behavior and decision making in the field of psychology and related behavioral, medical, and social sciences. Topics include approaches to moral issues and related to competence; integrity; professional, scientific, and social responsibility; respect for others' rights and dignity; and concern for others' welfare. *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units).

115. Abnormal Psychology

The study of psychology and human behavior in understanding the etiology, nature, development, and treatment of mental disorders. Topics include models of abnormal behavior, research, diagnosis, assessment, and treatment of emotional and behavioral disorders, such as affective disorders, personality disorders, sexual disorders, substance abuse disorders, and childhood disorders. *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

116. Advanced Topics in Abnormal Psychology

Advanced topics in abnormal psychology involves the discipline and principles of abnormal psychology in understanding the etiology, nature, development, and treatment of behavior and emotional problems and issues. Class topics include the history of abnormal psychology, theoretical models, assessment and intervention approaches, specialization, consultation, ethics, and current trends in the field. The course is designed for senior psychology majors interested in a career in abnormal psychology or related fields. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, lower-division psychology major requirements, and PSYC 115 preferred, but not required, or permission of instructor.* (5 units)

117. Health Psychology

Health psychology involves the discipline and principles of psychology and human behavior in understanding how the mind and body interact in health and disease. Topics include health promotion and primary prevention of illness, health enhancing and health damaging behaviors, psychosomatic illness, stress and coping, pain management, and a variety of specific behavior-related medical illnesses (e.g., heart disease, eating disorders, cancer, and AIDS). *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

118. Advanced Topics in Health Psychology

Seminar examines contemporary topics in health psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 117, and all lower-division psychology requirements preferred, or permission of instructor.* (5 units)

119. Psychology of Death, Dying, and Loss

An introduction to theory, research, and practice on the psychology of death and dying. Students explore the implications of death, dying, and loss in their lives. Topics include death in today's health care system, the psychology of grieving and coping with loss, life-threatening illness, caregiving, as well as social, cultural, and ethical issues related to death in contemporary society. *Prerequisites: PSYC 1, 2, 40, 43, or permission of instructor.* (5 units)

120. Perception

A theoretical and empirical investigation of human perceptual processes, with an emphasis on visual perception. Topics include psychophysiology of vision; perceiving visual space (shape, contrast, orientation, distance, depth, and motion); color perception; perceptual illusions; imagining versus perceiving; effects of knowledge on perception; and perception in "novel" environments. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

130. Psychology of Learning

A scientific investigation of learning and behavior. Both experimental and related theoretical developments are considered, as well as the application of the basic principles of learning. Students will become familiar with the theory and methods underlying research in learning. Covers Pavlovian and operant conditioning, including topics such as stimulus control, schedules of reinforcement, choice, and punishment. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

131. Cognitive Psychology

A theoretical, empirical, and experiential investigation of human information processing. Topics include the history of cognitive psychology and the following research areas: pattern perception, attention, working memory, long-term memory, memory distortions, imagery, language processes, and problem solving. Emphasizes contemporary theory and research, including recent developments in cognitive neuroscience. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

132. Advanced Topics in Learning

Seminar examines contemporary topics in learning theory and research. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing and all lower-division psychology requirements. Recommended but not required: PSYC 130.* (5 units)

133. Advanced Topics in Cognitive Psychology

Seminar explores contemporary theories and research in cognitive psychology and cognitive neuroscience. Class topics include consciousness, attention, memory, metacognition, and the relationship between imagery and perception. *Meets the Psychology Advanced Topics Requirement. Prerequisites: Senior standing, lower-division major requirements, or permission of instructor. Recommended, but not required: Completion of PSYC 120, 131, or 166.* (5 units)

134. Psychology of Education

The role of educational psychology is to understand and improve educational practice through the study of learning and teaching. Students enrolled in this course will be exposed to a variety of topics that relate to the study of learning and teaching. Such topics include cognitive development and language; personal, moral, and social development; learner differences and learner needs; culture and community; behavioral views of learning; motivation in learning and teaching; creating learning environments and evaluation, measurement, and success. Students in this course will gain their knowledge in several contexts including reading, community-based learning, lecture discussion, and group work. (5 units)

135. Psychology of Sleep and Dreaming

A theoretical, empirical, and experiential exploration of sleep, sleep disorders, and dreaming. Considers physiological, cognitive, neurocognitive, and functional approaches. Topics include psychophysiology of sleep and dreaming; purported functions of sleep and dreaming; personal and public health consequences of sleep disorders, sleep deprivation, and sleep debt; continuity in mental processes across the sleep/wake cycle; memory for dreams; approaches to working with dreams; and consciousness and dreaming, including lucid dreaming. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

136. Advanced Topics in Educational Psychology

Seminar exploring theories and research in educational psychology. Students will read, discuss, and critically analyze current empirical research and review articles in educational psychology. Topics emphasized will include motivation, learning, assessment, and individual and cultural differences as they pertain to education. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 134, and all lower-division psychology requirements, or permission of instructor.* (5 units)

137. Psycholinguistics

This course will examine human language (arguably our most impressive and unique skill as a species) as it is studied from a psychological perspective. The study of language in psycholinguistics in an attempt to understand how we develop this skill, how we put it to use, and what the consequences are when it breaks down. This course will cover major perspectives and controversies in the field, a variety of experimental techniques that are used to test theories and investigate language use, and how psycholinguistic research can be interpreted critically and related to both our everyday experience and to pathology. *Prerequisites: PSYC 1 and 2, PSYC 43 or permission of instructor.* (5 units)

139. Psychology of Consciousness

Once banned from the psychological vernacular in Western psychology, the psychological study of consciousness is thriving today. In this class, we will use experiential, theoretical, and empirical "tools" to investigate the psychology of consciousness. Our class discussions of the text will begin with how consciousness is currently defined and studied by psychologists. Next, we'll consider the psychophysiology of consciousness and additional research tools offered by neuroscience. Then we will explore a number of ways in which "alternate" states of consciousness are produced: via drugs, hypnosis, sleep and dreaming, meditation, and sensory deprivation. Three core questions will frame our discussions: "What cognitive skills seem to be essential for consciousness? Can neuroscience explain consciousness (otherwise known as "the hard problem")? and What is consciousness for? *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

144. Psychological Assessment

Principles and issues related to testing and measurement in psychology. Topics include test construction, reliability, validity, and the professional and ethical use of psychological tests and test scores. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

150. Social Psychology

The scientific investigation of how people influence each other. Students will learn social psychological theories about the causes of human behavior, as well as how these theories can be scientifically tested and applied to solve real-world problems. Topics include social cognition, the self, attitude change, conformity, compliance, group processes, helping, stereotyping, prejudice, discrimination, intergroup relations, aggression, and attraction. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

151. Advanced Topics in Social Psychology

Seminar examines contemporary topics in social psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 150, and all lower-division psychology requirements, or permission of instructor.* (5 units)

153. Psychology of Close Relationships

The scientific investigation of close relationships, drawing from clinical psychology and social psychology. Topics include research methodologies for studying close relationships; theories of attraction, love, and marriage; the developmental process of relationships; and interventions for distressed relationships. *Prerequisite: PSYC 1 or 2, or permission of instructor. Recommended, but not required: PSYC 40 and 43.* (5 units)

155. Psychology and Law

Explores relevance for law of psychological principles and findings, as well as laws pertaining to practice. Topics include eyewitness testimony, legal insanity, jury dynamics, expert testimony, and family law issues. *This course is open to nonmajors. Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

156. Managing Diverse Workforce

The goal of this course is to raise awareness of important differences and provide students with the knowledge needed to be productive in a more diverse workplace. This will be facilitated by discussion of prejudice, stereotypes, and approaches to acculturation and integration in organizations. *Meets the Core Diversity requirement. Prerequisites: None.* (5 units)

157. Industrial/Organizational Psychology

An introduction to the broad field of Industrial/Organizational (I/O) psychology, which includes science and practice related to personnel selection and placement, training, and development; organizational development; occupational health and safety; work motivation; and other areas concerned with human behavior in organizational contexts. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

158. Conservation Psychology

Many environmental problems (e.g., global warming, pollution, biodiversity loss, and resource depletion), are caused by human behavior, and changing this behavior is necessary in order to solve them. Topics include psychological reasons (emotions, thoughts, values, motivations, and social context) why people behave in environmentally sustainable or unsustainable ways, and how psychology can be used to develop policies and other interventions to help promote sustainable behavior. *Also listed as ENVS 158. Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

159. Psychology of Religion and Spirituality

The course highlights the relationship between psychology and religion, particularly how psychology can deepen the understanding of religious experience, spirituality, religious beliefs, and practices. Topics include prayer and meditation, religion and health, pastoral psychology, religion and psychotherapy, faith and imagination, and how religion and spirituality contribute to positive psychology. It also aims to inform the understanding of religion, spirituality, faith, and religious practice through science and empirical research. *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

160. Personality

The study of individual differences and personality processes. Discussion of major theories of personality. Presentation of current research topics in personality and methods for assessing individual differences and other personality constructs. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

161. Advanced Topics in Industrial/ Organizational Psychology

Seminar examines contemporary topics in I/O psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 157, and all lower-division psychology requirements, or permission of instructor.* (5 units)

162. Cross-Cultural Psychology

Study of psychology from various cultural perspectives with a view to identifying patterns of behavior that are universal and those that are culturally specific. The course looks at the extent to which American research findings apply to other societies. Also examines issues that arise in cross-cultural encounters. *Prerequisites: PSYC 1 and 2, or permission of instructor.* (5 units)

164. Autism

This course will explore autism from three perspectives. First, Foundations covers diagnostic criteria for autism, assessment, epidemiology, history, and failures in assessment of determinants (e.g., refrigerator mothers, vaccines) and treatments (e.g., facilitated communication). Second, Biology covers genetic inheritance, neuropathology (e.g., white matter abnormalities), opioid excess theory, and biological treatments (e.g., pharmacology, nutrition, brain-based treatments). Finally, Behavior covers the basics of applied behavior analysis (e.g., using PECS), working with families, and outcome assessment. (5 units)

165. Physiological Psychology

Emphasis on the neuroanatomical, neurochemical, and neurophysiological correlates of motivation, emotion, learning, and memory. Neural regulation of sleep and arousal, mechanisms of drug action, and neuropathology are also reviewed. *Prerequisites: PSYC 1, 40, and 43, or permission of instructor.* (5 units)

166. Human Neuropsychology

Study of human brain function from an experimental perspective. Addresses questions such as: What are the brain mechanisms that lie at the basis of perception and memory, of speech and thought, of movement and action? What happens to these processes when individual parts of the brain are destroyed by disease? *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

167. Psychopharmacology

Examination of the effects of various drugs (such as nicotine and alcohol) and abnormal neurochemical states (such as schizophrenia and depression) on mental functioning and behavior. Topics include the effects of various drugs on the brain and the biochemical basis of human neurosis and psychosis. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

168. Advanced Topics in Neuroscience

An integration from various sub-disciplines in psychology with an emphasis on the brain and behavior. Topics include neural development from fetus to early childhood, neural basis of psychopathologies (e.g., schizophrenia and depression), cognitive functions (memory, attention, and learning), and personality and related disorders. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 1, 40, 43, and any two upper-division psychology courses, or permission of instructor. Recommended, but not required: PSYC 165, 166, or 167.* (5 units)

170. History and Systems of Psychology

Origin and development of modern psychological approaches. Psychoanalysis, behaviorism, Gestalt, humanism, and existentialism. Emphasis on conceptual issues. Focuses on selected topics viewed from the multiple conceptual frameworks and sub-disciplinary perspectives that characterize psychology's history. *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

171. Advanced Topics of History of Psychology

This advanced topics course includes readings and discussions from a textbook on the history of psychology, and from original papers written by the psychologists we read about. Students will write their senior papers in this course on any approved (by instructor) topic in psychology, tracing the history of how it has been conceptualized, researched, and written about over a period of at least 50 (in many cases 150 to 200) years. Students will be assigned to lead discussions on certain days, everyone will submit reading notes (in a brief format), and we will have papers orally presented during the last week. This course begins with philosophical and scientific ideas from the 18th and 19th centuries and then moves into the formal history of our discipline. *Meets the*

Psychology Advanced Topics requirement. Prerequisites: At least two upper-division psychology classes and senior standing. If all seniors seeking a place are enrolled and seats are available, juniors may enroll. (5 units)

172. Adolescent Development

A focus on development during the second decade of life, from puberty through early adulthood. Topics include physical, intellectual, and social development; identity; sexuality; changing social contexts; and life transitions. *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

178. Advanced Topics in Developmental Psychology

Seminar examines contemporary topics in developmental psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. Focus of seminar can be children and adolescent development or young adult development. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, PSYC 172 or 185, and all lower-division psychology classes.* (5 units)

182. Psychology of Gender

Examines how gender identity is developed and how gender influences the development of children, adolescents, and adults. Topics include gender identity, parenting, sexual orientation development, sex roles, and similarities and differences between the genders in treatment, expectations, and opportunities. *Prerequisite: PSYC 1 or 2, or permission of instructor.* (5 units)

185. Developmental Psychology

An upper-division survey of child development, including infancy, early childhood, middle childhood, and a brief introduction to adolescent issues. Major developmental theories and methods of studying development are introduced. Principle findings regarding social-emotional, cognitive, and physical development in the different stages of childhood are included, as well as findings about the impact on development of the societal context in which development occurs. *Prerequisite: PSYC 1 or 2. Open to majors in other fields who are required to or wish to study child development, or permission of instructor.* (5 units)

188. Adult Development

Young adulthood through middle age. Stages and transitions in adult life, the concept of life crisis, and the interplay of situations and personality. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

190. Clinical Psychology

The discipline and principles of clinical psychology in understanding the etiology, nature, development, and treatment of behavioral, emotional, and relational problems. Topics include the history of clinical psychology, theoretical models, assessment and intervention approaches, specialization, ethics, and current trends. *Prerequisites: PSYC 1 or 2, PSCY 115 preferred but not required, or permission of instructor.* (5 units)

193. Psychology of Religion and Spirituality

The discipline and principles of psychology and human behavior in understanding religion and spirituality. Topics include empirical research and theory on religious and spiritual behavior and transformation from the various religious, spiritual, and historical wisdom traditions. Contemplative practices and spiritual tools from the various religious/spiritual wisdom traditions for psychological and physical health will be highlighted. A spiritual formation project will help students experience a hands-on activity to examine their own spiritual formation and development. This course is inclusive in that no particular religious/spiritual tradition or any tradition affiliation is assumed or required, and also highlights evidence-based empirical approaches. *Prerequisites: PSYC 1 or 2, and a RTC 1 class.* (5 units)

195. Research Practicum

Advanced methodological issues taught primarily through direct involvement in an experimental research project. Activities include reviewing the literature, formulating a research question, developing a design and procedure, collecting and analyzing data, and writing a professional research report. *Prerequisites: Two upper-division psychology courses. Restricted to psychology majors only or by permission of instructor.* (5 units)

196. Psychology of Aging

Development in later life. Topics include theories of aging and development; cognition, perceptual, and social changes in aging; mental health issues in the elderly; and abnormal aging, such as Alzheimer's disease. *Prerequisites: PSYC 1, 2, 40, and 43, or permission of instructor.* (5 units)

197. Psychology Labs

Psychology labs will vary by topic and are associated with various courses offered throughout the year. (1 unit)

198. Internship/Practicum

Clinical experience in community agencies. Selected readings. *Open to upper-division students with a GPA of 3.0 or higher who have received permission from a faculty sponsor.* (2–5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. To receive course credit, the student must submit a formal written proposal and have it approved by the sponsoring faculty member and the department chair. The proposal must be submitted before the end of the previous quarter and must meet University requirements for independent study credit. (1–5 units)

199A. Advanced Topics for Directed Reading/Directed Research

Advanced topic independent projects undertaken by upper-division students with a faculty sponsor. To receive course credit, the student must submit a formal written proposal and have it approved by the sponsoring faculty member and the department chair. The proposal must be submitted before the end of the previous quarter and must meet University requirements for independent study credit and requirements for a psychology Advanced Topic course. *Meets the Psychology Advanced Topics requirement. Prerequisites: Senior standing, lower-division psychology requirements, or permission of instructor.* (5 units)

PUBLIC HEALTH PROGRAM

Director: Craig M. Stephens

The Public Health Program in the College of Arts and Sciences offers the bachelor of science degree in public health science. The program also offers a minor degree in public health, and manages the Global Health Pathway of the University Core.

The public health science (PHS) major is an interdisciplinary degree focused on the health of human populations and individuals. Students will gain a solid foundation in biology and chemistry to understand the functioning of the human body in health and disease. The major further explores the influences of environmental and social factors on human health through required and elective public health courses, as well as relevant courses in the social sciences and humanities. Through the senior capstone and mandatory internship, PHS majors engage in health-focused service and research projects that apply their education to real-world public health problems, and integrate learning across disciplines. Students are encouraged to study abroad to gain perspective on global health issues.

Public health science majors will be well-prepared for careers, graduate education, or professional training in public health or health-related professions, including medicine and nursing. There are many career options in the field of public health, including healthcare administration, planning, and public policy; epidemiology and disease surveillance; clinical research and clinical trials management; health-related education and social work; health and science communication; and basic research.

Students intending to pursue a medical degree, or postgraduate training in other health-related professions, should contact the University pre-health advisor to discuss prerequisites for admission to such programs. Many require a full year of physics coursework (e.g., PHYS 11–13 or 31–33) and completion of the organic chemistry series (CHEM 33) in addition to the requirements for the public health science major.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of science degree, public health science majors must complete the following courses:

- PHSC 1, 2, 100, 139, 150, 190
- BIOL 21, 22, 24, 25
- CHEM 11, 12, 13, 31, 32
- Two introductory social science courses chosen from ANTH 1, ANTH 3, ANTH 50, ECON 1, ENVS 50, POLI 1, POLI 25, POLI 50, PSYC 1, PSYC 2, SOCI 1, SOCI 33
- MATH 11, 12
- One statistics course chosen from MATH 8, ANTH 112, BIOL 160, COMM 110, ECON 61, ENVS 110, OMIS 40, POLI 100, PSYC 40, or SOCI 120.
- One public health elective: Any PHSC course other than the required courses listed above.
- Two biomedical, electives, at least one with a lab component, chosen from BIOL 106/ PHSC 124, 110 (lab), 111(lab), 113 (lab), 114 (lab), 115 (lab), 116 (lab), 119, 124 (lab), 127, 129, 145, 160 (lab), CHEM 141, or PHSC 101.

- Two social science or humanities electives chosen from ANTH 112, ANTH 133, ANTH 134, ANTH 135, ANTH 137, ANTH 140, ANTH 150, ANTH 170, COMM 164A, COMM 176A, ECON 101, ECON 129, ECON 130, ECON 134, ECON 135, ECON 160, ENVS 116, ENVS 146, ENVS 147, ENVS 149, ETHN 156, HIST 123, POLI 140, POLI 146, POLI 158, POLI 165, POLI 167, PSYC 114, PSYC 115 or 115EL, PSYC 117 or 117EL, PSYC 150, PSYC 167, PSYC 172, PSYC 185 or 185EL, PSYC 196, SOCI 132, SOCI 134, SOCI 138, SOCI 157, SOCI 165, SOCI 172, TESP 157, RSOC 170

Internship Requirement

The PHS major requires students to complete at least 100 hours of public health-related internship work. Internships must be approved in advance by the Director of the Public Health Program. Internships can be done on a part-time or full-time basis, during the academic year or summer. Students may receive course credit for volunteer internships. For guidance on internships, contact one of the Public Health Program faculty.

REQUIREMENTS FOR THE MINOR

The interdisciplinary public health minor provides an introduction to the field of public health and is particularly useful for students interested in careers related to medicine, health care, community health, social work, education, or public policy. The minor establishes a sound scientific foundation to understand the functioning of the human body in health and disease and to appreciate the mechanisms by which diseases arise and spread in populations. Students also develop a foundation in the social sciences and statistical methods. Upper-division courses address the influences of biological, environmental, cultural, economic, and historical factors on human health. Students are encouraged to study abroad, if possible, to gain perspective on global health issues. The Public Health Program is evolving and students are encouraged to petition the Director of the Public Health Program to consider new relevant courses developed at Santa Clara and partner institutions abroad in addition to the electives described below.

Public Health Courses

- PHSC 1, 2, 150, and at least one additional PHSC course
- One statistics course chosen from MATH 8, ANTH 112, BIOL 160, COMM 110, ECON 61, ENVS 110, OMIS 40, POLI 100, PSYC 40, or SOCI 120

Natural Science Courses

- BIOL 21
- CHEM 11

Upper-Division Elective Courses

- At least three courses from the following list, including courses from at least two departments: ANTH 112, ANTH 133, ANTH 134, ANTH 135, ANTH 137, ANTH 140, ANTH 150, ANTH 170, BIOL 108, BIOL 110, BIOL 111, BIOL 113, BIOL 114, BIOL 115, BIOL 116, BIOL 119, BIOL 124, BIOL 127, BIOL 129, BIOL 145, BIOL 160, COMM 164A, COMM 176A, ECON 101, ECON 129, ECON 130, ECON 134, ECON 135, ECON 160, ENVS 116, ENVS 146, ENVS 147, ENVS 149, ETHN 156, HIST 123, POLI 140, POLI 146, POLI 158, POLI 165, POLI 167, PSYC 114, PSYC 115 or 115EL, PSYC 117 or 117EL, PSYC 150, PSYC 167, PSYC 172, PSYC 185 or 185EL, PSYC 196, SOCI 132, SOCI 134, SOCI 138, SOCI 157, SOCI 165, SOCI 172, TESP 157, RSOC 170

LOWER-DIVISION COURSES

1. Human Health and Disease

Examination of human health and disease. Topics include common infectious and chronic diseases, how diseases arise in individuals and populations, how diseases are studied, and how health is promoted at the individual and community levels. (4 units)

2. The American Health System

This course examines the fundamental aspects of the U.S. health system including organization, delivery, financing, cost, access, and quality. The focus will be on the current system, but significant attention will be given to its historical roots and to alternative approaches implemented in other developed countries. Potential policy reforms and the interface of the health care system with public health will also be discussed. (4 units)

3. Global Health

Interdisciplinary investigation of basic concepts in public health in a global context, including social and environmental determinants of health, health indicators and the global burden of disease, and relationships between health status, education, and poverty. The course is appropriate for students from any major. (4 units)

7. Public Health and Ethics

Examination of the ethical and conceptual foundations of public health. Topics studied may include ethical theory and ethical justifications of public health interventions, genetic screening of newborns conducted by the State, prenatal genetic diagnosis, genomic medicine, mandatory vaccinations for children and others, parental responsibility for their children's health and welfare, public policy and law regarding the use of tobacco, alcohol, and other drugs, the allocation of vital organs for transplantation, health disparities related to race and other social categories, the legal and administrative regulation of pain management, harm reduction (such as needle exchange), health promotion and behavior modification, and defensive medicine. *Also listed as PHIL 7B.* (4 units).

11. Women's Health

This course examines how women's health over the life course is influenced by biological, psychological, social, and cultural experiences. Topics include menarche and pubertal development, reproductive health and rights, menopausal transition, mental health, and violence. Current, historical, and cross-cultural examples are discussed. (4 units)

21. Health and Aging

Analysis of the human aging process, and the biological, medical, social, and ethical issues associated with aging. Topics include theories of aging, diseases and various health care issues associated with aging, and end-of-life issues. (4 units)

28. Human Sexuality

Integrates the biological foundations of human sexuality with psychological and social aspects of sexuality. Topics include the anatomy, physiology, and neurobiology of sex, gender and sexual orientation, sexually transmitted diseases, conception and pregnancy, contraception and abortion, and sexual dysfunctions. *Also listed as WGST 33.* (4 units)

UPPER-DIVISION COURSES

100. Epidemiology

Introduction to epidemiology, including measurement of population health status, analysis of disease occurrence and transmission at the population level, and development and assessment of public health interventions aimed at improving the health of communities and populations. *Prerequisite: BIOL 24. Also listed as BIOL 117.* (5 units)

101. Nutrition

This course focuses both on how the body processes food and on how the resulting nutrients affect human physiology. In addition to exploring topics of particular interest to college students including eating disorders, ideal body weight, nutritional supplements, and the influence of nutrition on athletic performance, this course also considers the global impacts of poor nutrition on public health. *Prerequisite: BIOL 24.* (5 units)

111. Health Education and Promotion

This course examines fundamental concepts of health education and promotion in a variety of public health contexts. Major theoretical approaches and models related to behavior change, social influence, communication strategies, and community-based change are discussed, as well as multifactorial determinants of health and health-related behaviors. An overview of different research methodologies for health program design, implementation, and evaluation is provided. (5 units)

124. Health Consequences of a Western Lifestyle

This course explores the impact of living in a developed country on human health. Topics such as diabetes, obesity, heart disease, hypertension, and cancer will be discussed at the molecular, cellular, physiological, and population levels. *Prerequisite: BIOL 25* (5 units)

131. Community Health

This course examines key health indicators and patterns seen in individuals, families, neighborhoods, schools, and communities. Students will explore social, environmental, political, cultural, and behavioral factors that contribute to health disparities linked to racial, ethnic, socioeconomic, and geographic differences. The course will also examine the design, implementation, and evaluation of social and behavioral interventions and health policies to improve community health. (5 units)

135. Human Development and Sexuality

Examination of evolutionary, biocultural aspects of human growth, development, and sexuality throughout the life cycle. Special emphasis on how various cultural, economic, and political factors influence norms of sexual behavior in different societies. *Fulfills the Science, Technology and Society requirement. Also listed as ANTH 135.* (5 units)

139. Experiential Learning in Public Health

This course will examine work in diverse areas of public health through discussion and reflection, with particular attention on vocational discernment and personal and professional development. *Enrollment should precede or accompany the required internship for the PHS major. Prerequisites: PHSC 1; enrollment by permission of instructor.* P/NP grading. (2 units)

142. Environment and Health

This course will help students gain a better understanding of environmental factors that affect human health. Topics covered include population growth and urbanization, human ecology, pesticides and environmental toxins, air and water pollution, waste generation and management, and climate change. Particular emphasis will be placed on how these issues affect the global poor. (5 units)

150. Evidence-Based Public Health

This course focuses on the application of scientific reasoning and epidemiological analysis to public health research and program planning. On the research side, strategies for formulating appropriate research questions, designing studies, collecting and analyzing data, and interpreting and communicating results will be emphasized. Approaches for converting evidence into action will also be covered, including needs assessments, program development and implementation, and evaluation strategies. Students will gain hands-on experience in collecting, analyzing and interpreting, and acting upon empirical evidence in public health. An overview of major theoretical approaches and models related to behavior change, social influence, communication strategies, and community-based change will also be covered. *Prerequisite: PHSC 1.* (5 units)

160. Substance Abuse and Addiction

This course explores the nature and consequences of alcohol and drug addiction from biological, psychological, and public health perspectives. Students will study common drugs of addiction, the underlying causes of addiction, and treatment strategies. Societal impacts and responses to substance abuse and addiction will be examined in depth. (5 units)

170. Public Health in El Salvador

This course focuses on health care and public health in El Salvador, and provides students with an opportunity to integrate academic study and direct immersion with people living in poor communities, where the clinics that will serve as praxis sites are located. The course will examine major health problems in El Salvador, why these health issues exist, and how they are being handled (or not) by medical and public health approaches. (5 units)

172. Management of Health Care Organizations

Explores the sociological and practical issues of operations, financing, and management in organizations providing services for people with health problems (organizations such as nursing homes and hospitals) or people with infirmities (organizations such as senior care centers and assisted living facilities). *Also listed as SOCI 172.* (5 units)

190. Public Health Science Capstone

Integrative course organized around a different public health theme each quarter. Includes lectures, readings, guest speakers, and discussion, culminating in student research projects and presentations. The course is intentionally interdisciplinary, demanding that students address public health issues from diverse scientific and cultural perspectives, and employ a variety of analytical tools. *Prerequisite: PHSC 1. Pre- or co-requisite: PHSC 100 or 150, or permission of instructor.* (5 units)

196. Peer Health Education

Provides students with current information on a variety of health topics, including general wellness, alcohol and substance abuse, nutrition, eating disorders, stress, mental health, sexual health, and sexual assault. Basic listening, counseling, group facilitation, public speaking, and presentation skills are developed and nurtured. Students are challenged to grow as leaders, peer counselors, and educators. Upon completion of this course, students are eligible to become a member of the Peer Health Education (PHE) Program. *Enrollment by permission of instructor.* (2 units)

197. Public Health Internship

Under the guidance of a qualified public health professional, students will complete a directed off-campus internship in public-health related activities or research. *Open to public health science majors with permission of faculty advisor or the director of the Public Health Program. Prerequisite: PHSC 1.* May be repeated for a limit of no more than 5 units. P/NP grading. (1-5 units)

198. Peer Health Educator Practicum

This course is for students who have already completed training as peer health educators through PHSC 196 and who will be actively involved in the Peer Health Education Program during the enrolled quarter. *Enrollment by permission of instructor.* (1 unit)

DEPARTMENT OF RELIGIOUS STUDIES

Professors Emeriti: Michael Buckley, S.J., Denise Carmody, Anne Marie Mongoven, O.P.
Professors: Paul G. Crowley, S.J. (*Santa Clara Jesuit Community Professor*), Diane E. Jonte-Pace, Gary A. Macy (*Director, Graduate Program in Pastoral Ministries, Department Chair, and John Nobili, S.J. Professor*), Frederick J. Parrella, David J. Pinault, John David Pleins
Associate Professors: James B. Bennett, David B. Gray, Teresia Hinga, Akiba Lerner, Michael C. McCarthy, S.J. (*Edmund Campion, S.J. Professor*), Catherine M. Murphy, Ana Maria Pineda, R.S.M., James W. Reites, S.J., Philip Boo Riley, Francis R. Smith, S.J.
Assistant Professors: Socorro Castañeda-Liles, Roberto Mata, Thao Nguyen, S.J., Oliver Putz
Senior Lecturers: Margaret R. McLean, Sarita Tamayo-Moraga
Lecturers: William Dohar, Jean Molesky-Poz

The Department of Religious Studies offers a degree program leading to the bachelor of arts in religious studies. The department also offers a minor program for those who wish to concentrate in theological and religious studies. In keeping with the University's commitment to the Catholic faith tradition, the department offers a variety of courses in Scripture, History, and Catholic theology. Faithful to the Jesuit tradition of liberal education and engagement with other religions, the department offers a wide breadth of courses in various religious traditions and methodologies for the study of religion. The department also offers courses as part of the Undergraduate Core Curriculum, at both lower-division and upper-division levels. Courses are clustered in three areas: Theology, Ethics, and Spirituality (TESP); Scripture and Tradition (SCTR); and Religion and Society (RSOC).

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of arts degree, students majoring in religious studies must complete the following departmental requirements:

- Three lower-division courses, one from each of the three areas (scripture and tradition; theology, ethics, and spirituality; and religion and society)
- Seven approved upper-division courses, including three designated religious studies seminars, with one in each of the three areas
- RELS 90 (Theories and Methods)
- RELS 197A and RELS 197B, a year-long capstone seminar

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in religious studies:

- One introductory-level religious studies course (1–19)
- Two intermediate-level courses (20–99)
- Four approved advanced-level courses (100–199), one of which must be a religious studies seminar. Of the seven courses, at least one must be from each the three areas (scripture and tradition; theology, ethics, and spirituality; and religion and society).

LOWER-DIVISION COURSES: SCRIPTURE AND TRADITION (SCTR)

11. Controversies in Religion: Ancient and Modern

The course critically explores ancient and modern debates about Western religion, especially questions of war, violence, suffering, human purpose, and the relation of science to religion. (4 units)

15. Texting God

This course explores how people express their beliefs and how the technologies they use shape what they say. Focusing on Jewish, Christian, and Muslim "texts" (oral and written), this course examines how communities determine what counts as scripture, the core beliefs they inscribe in them, the mechanisms they develop for adapting them, and the conflicts that erupt when interpretations collide. This course also examines how the media (through which scripture was disseminated) shaped spirituality, and asks how current technologies are altering our experiences of text, of scripture, and of our relationships with God. (4 units)

19. Religions of the Book

This course offers an introduction to Judaism, Christianity, and Islam with a study of their central texts, traditions and practices. We begin the course with a paradox: religion, that which in its literal sense "binds" or "fastens together," is also that which often violently divides our world. As we examine the sacred texts of Jews, Christians, and Muslims (Hebrew Bible, New Testament, and Qur'an), and various methods of interpreting them, our focus will remain on what is shared and what characteristically distinguishes between the monotheistic faiths. (4 units)

23. Christ in the Four Gospels

Deals with the historical ministry of Jesus, his resurrection, and how his disciples and the church of the New Testament period interpreted Jesus' teaching and developed their beliefs about Christ. Concentrates on the Gospel portrayal of Jesus Christ. (4 units)

26. Gender in Early Christianity

The history of early Christianity is often portrayed as a history of, by, and about men, despite clear indications that women played a prominent role in the early church. Introduces the construction of gender in antiquity, Jewish and Greco-Roman laws and customs, the biblical canon, and other Christian texts. Contemporary feminist perspectives will inform the discussion. *Also listed as WGST 46.* (4 units)

27. Historical Jesus

A study of the sources, problems, and methods in the various "quests" for Jesus of Nazareth. Each phase of the quest in the 19th and 20th centuries, from Reimarus to the Jesus Seminar. Students will assess historical-critical criteria and apply these criteria to the sources in a term paper in order to construct their own versions of a "life" of Jesus. (4 units)

30. New Testament

Explores the historical and religious background of the New Testament period and concentrates on the origin and purpose of the New Testament writings and the overall meaning of the individual books. (4 units)

33. New Testament Narratives and Cinema

Exploration of the stories that emerged with the Jesus event, their historicity, and their role in forming the early Christian communities. No previous knowledge of Christianity is needed. (4 units)

35. Science versus the Bible: The Genesis Debates

Exploration of the continuing debate over the biblical stories of creation and the flood in relation to the sciences of human evolution, geology, and mythology. One focus is on historical developments in America and England in the 17th to 19th centuries. The role of fundamentalist Christianity in the public school system today. (4 units)

39. Biblical Women and Power

Hero, villain, prophet, deviant—these are some of the power roles embodied by women in the Bible. Explores the exercise of power by biblical women in actual and figurative situations, in culturally positive and negative ways. Attention will be given to the continuing impact of such traditions for gender socialization in our world today. *Also listed as WGST 47.* (4 units)

41. Biblical Hebrew I

Introduction to the vocabulary and grammatical forms of Biblical Hebrew. (4 units)

42. Biblical Hebrew II

Completion of the grammatical forms of Biblical Hebrew. (4 units)

43. Biblical Hebrew III

Introduction to the readings of various genres of Biblical Hebrew literature and ancient Hebrew inscriptions. (4 units)

65. Early Christianity

A selective survey of the history of the Christian church from its beginnings through the fifth century. Examines the origins of Christianity within Judaism and the Greco-Roman world, and studies how it moved from a marginal apocalyptic sect in Judaism to the exclusive religion of the Roman Empire. Also investigates some of the practical outcomes of Christian belief in the way it was lived. (4 units)

UPPER-DIVISION COURSES: SCRIPTURE AND TRADITION (SCTR)

100. Biblical Poetry and Ancient Myth

Comparative study of the poetry and myths of ancient Israel and the ancient world. Focuses on the Psalms, the Song of Songs, and the Book of Job. Examines a number of Mesopotamian, Canaanite, and Egyptian myths. Discusses the methodological problem of mythic interpretation. (5 units)

110. Gods, Heroes, and Monsters: Myth and Bible

Explores the debates about the meaning of myth in relation to the Bible and other ancient texts, with special attention to diverging theories of myth, role of the male hero, violence, feminist interpretations, problem of suffering, the relation of religion and science, etc. (5 units)

128. Human Suffering and Hope

Explores issues of human suffering, justice, and belief in light of the biblical Book of Job. Best for students interested in the creative arts, fiction writing, or community service. (5 units)

141. Advanced Hebrew I

Advanced grammar review and reading of select biblical narratives and poetic texts. (5 units)

142. Advanced Hebrew II

Extended reading of biblical Hebrew narratives and poetic texts. (5 units)

143. Advanced Hebrew III

Continuation of extended reading of biblical Hebrew narratives and poetic texts. (5 units)

157. The Bible and Empire

Explores the political impact of empires on biblical texts in their initial composition and codification and their subsequent interpretation. Analyzes the ways that imperial interests are both embedded in and critiqued by biblical texts. Examines how biblical interpretations figure into the international and ethical debates that characterize the contemporary postcolonial world, with attention to race, ethnicity, and gender. Offers students the chance to reflect on their own ethics and beliefs through a topic that is both global and historically informed. *Also listed as WGST 153.* (5 units)

158. Postcolonial Perspectives on the New Testament

Introduces students to postcolonial critical theory and uses it to explore the political contexts of New Testament texts, raising new questions about the ethical implications of how we read these texts today. *Also listed as WGST 147.* (5 units)

162. Violence and Nonviolence in Scripture

An examination of the biblical mandates for and against the use of violence in God's name. This course will probe the historical and ethical foundations of pursuing or renouncing violence as evidenced in Jewish and Christian scriptures. Of particular concern will be the weighing of these various moral imperatives in light of the social questions we face today. (5 units)

165. Gender and Sex in Biblical Interpretations

Opens the Bible to critical readings from feminist and queer theory. It examines the original contexts of contested passages (creation, the destruction of Sodom, the role of women in early Christianity) as well as subsequent interpretation, and exposes the insights and ethical challenges that gender studies pose to these classic texts. *Also listed as WGST 148.* (5 units)

170. Darwin and God

This course reviews the ongoing debate over the relation between Darwin's evolutionary ideas and religious belief, and specifically considers the discovery that religion and ethics have evolved. (5 units)

175. Redeeming Economics

Explores Jewish and Christian economic practices in the Bible and in the history of biblical interpretation. Beginning with the Sinai covenant and the prophetic and wisdom traditions, it probes the economic contexts of emerging beliefs and practices, and then traces how these traditions were reshaped in the Roman Empire, the middle ages, and the Protestant Reformation. It then turns to Karl Marx and contemporary Catholic social teaching, framing each in terms of biblical traditions and the economic context of the modern world. (5 units)

198. Practicum

(1–5 units)

199. Directed Reading and Research

For religious studies majors only. (1–5 units)

LOWER-DIVISION COURSES: THEOLOGY, ETHICS, AND SPIRITUALITY (TESP)

2. Magicians, Athletes, and God

An introduction to Catholic Christianity's notion of transcendence using fantasy literature to describe and inspect the selected Christian truth claims about reality: a personal God, grace, sin, doctrine, ritual, sacred texts, and the nature and role of authority. The course makes use of narratives to disclose the foundational concepts in Christian discourse. (4 units)

4. The Christian Tradition

A theological examination of the Christian tradition covering such topics as religious experience and the meaning of God; Jesus in the Gospels; the development and history of the Christian churches; and the relevance of Christianity in the 21st century global world. (4 units)

40. Exploring Judaism

Provides a basic introduction to the essential terms, traditions, religious trends, ideas, and history that have defined Judaism historically and continue to inform contemporary debates over the meaning of Judaism in the modern world. Covers a variety of voices and traditions within the centuries old-discussion of what it means to be part of the Jewish people and what Judaism means as a way of life. (4 units)

43. Catholic Social Thought

Focuses on the evolution of Catholic social thought, methodologies being applied to address social questions in the modern world, formation of the public conscience, responsibility toward the common good, and Christian engagement in the process of social transformation. (4 units)

45. Christian Ethics

Focus on the moral implications of the Christian commitment, formulation of the principles of a Christian ethic, and their application to areas of contemporary life (e.g., to wealth and poverty, violence and nonviolence, bioethics and interpersonal relations). (4 units)

46. Faith, Justice, and Poverty

Who is my neighbor, and how are we to be community? This course examines biblical theologies of social responsibility and solidarity, selected Christian social movements concerned with care for the other, and major theologians and ethicists on poverty and justice. (4 units)

50. Catholic Theology: Foundations

An examination of the fundamental theological issues of Catholicism such as the experience of God, revelation and faith, the historical foundations of the tradition, the mystery of Jesus, grace, sin and redemption, the Church sacraments, and religious pluralism, etc. (4 units)

60. Hispanic Popular Religion

Study of the popular expressions of faith of the Hispanic people, exploring their theological underpinnings. Includes both classroom and field experience. (4 units)

62. Medical Ethics in Christian Perspective

Introduction to the field of biomedical ethics, with special attention to the guidance and challenges that a Christian perspective provides. Examination of ethical principles and their application to current topics with attention to how conflicting approaches can all claim to be "Christian." (4 units)

65. U.S. Hispanic Theology

Acquaints students with the historical development of Hispanic theology in the United States. Attention will be given to the works of representative U.S. Hispanic theologians and to the themes and concerns that these works address. (4 units)

71. Mysticism in Catholicism

An introduction to mysticism in the Catholic tradition and its relationship to both theology and spirituality. Special attention to the origins of the term within Catholicism, issues of gender, the relationship between hierarchy and a personal relationship with God, and historical controversies and discussions surrounding the possibility of union with God. (4 units)

72. Darwin, God, and the Poets

This course uses Darwinian and religious poetry to explore the relation between religion and science. The course asks: What is the relation between belief and evolution? How have poets responded to the deep questions raised by Darwin and his ideas? (4 units)

77. Encounters of Religion and Globalization

Religions encounter one another all the time, with varying results—dialogue, conversion, syncretism, and wars. This course examines the dynamics and venues for these encounters today, focusing on the communities and organizations that make Silicon Valley's diverse religious landscape. (4 units)

79. Women in Christian Tradition

History as written mostly by men has obscured the important role that women have played in Christian tradition. This course will investigate the official and unofficial positions women have held in the Christian church as well as read works by particular Christian women in an attempt to restore the women to their rightful place in Christian history. *Also listed as WGST 48.* (4 units)

82. Witches, Saints, and Heretics: Religious Outsiders

Survey of the experience of religious exclusion across the realms of magic, holiness, and heterodoxy. While anchored in the premodern Christian tradition, the course also explores more contemporary phenomena, persons, and movements. (4 units)

83. Dialogues Between Science and Religion

Explores and dialogues with the distinct methods and ways of thinking in theology and science. Examines how the interpretations of the scientific (cosmology, biology, and ecology) and the theological worldviews of the 21st century relate to the questions concerning God, origins of the universe, evolution, creativity, human experience, and ecology. (4 units)

86. Spirituality and Engineering

Reflects on and compares the methods and practice of the engineering sciences and theology, especially spirituality. Both affect the way we live, both endeavor to transform the world. (4 units)

88. Hope and Prophetic Politics

Focuses on Abraham Joshua Heschel and Martin Luther King Jr., two religious intellectuals whose lives and works draw on this tradition to raise and address questions basic to any discussion of the role of religion in public life. Through readings of Obama and student-directed "hope projects," we will also focus on contemporary examples of what it means to both think and live in hope. (4 units)

UPPER-DIVISION COURSES: THEOLOGY, ETHICS, AND SPIRITUALITY (TESP)

106. Christian Symbol and Ritual

Investigates the role of symbol and ritual in human experience and then applies the insights from that study to an investigation of Christian symbols and rituals. The class will not only study rituals but also visit, participate, and analyze rituals from various Christian traditions. (5 units)

108. Human Trafficking and Christian Ethics

This course will examine the global phenomenon of human trafficking—specifically sex trafficking and forced labor trafficking—using the lenses of Christian theology and ethics. Social-scientific, legal, public policy, and autobiographical sources will be used to frame the phenomenon of human trafficking; and theological/ethical categories such as human dignity and freedom, sin and redemption, neighbor love, and solidarity will be used to illuminate and assess its dimensions. Special attention will be given to the question of human agency as well to social, political, cultural, and gender-based analyses as these impact and shape an adequate response to human trafficking. (5 units)

109. Hispanic Spirituality: Guadalupe

One of the most popular Marian devotions for Hispanic people (of primarily Mexican descent) is that of Our Lady of Guadalupe. Study of the history and tradition of Guadalupe, exploring its religious and spiritual significance in both the past and the present. (5 units)

111. Latin American Liberation Theology

In many parts of the world, people are murdered for their faith. The facts of martyrdom are important to document, to study, and reflect upon in order to evaluate the intertwining of faith and political realities. Focuses on the significance of one martyr, Archbishop Oscar Romero of El Salvador, whose life and death exemplify the consequence of socially conscious faith. (5 units)

118. Clare of Assisi and Ignatius of Loyola

Explores with depth and clarity, Clare of Assisi, patroness of Santa Clara University, and Ignatius of Loyola, founder of the Jesuits. Inquiring into medieval, modern, and contemporary worldviews, this course considers how their distinct legacies remain lights for us. Facilitates students' understanding of their spirituality, vocation, and work in the world. (5 units)

119. Theology, Sex, and Relationships

This course will explore the ethics of romantic and sexual relationships, including friendship, dating, intimacy, and the phenomenon of "hooking up" in contemporary campus culture. We will engage theological, philosophical, and social science sources, with the aim of developing a "theology of relationship" that reflects our best insights about our deepest human and religious identity. (5 units)

121. Church and the Future

Examines several theories about what the Roman Catholic Church might look like in the future. We will also look at the effects of globalization, mandatory celibacy, and the unfulfilled legacy of Vatican II. Given the faith-conviction that the Church will not fail, what might it look like in 2040? (5 units)

124. Theology of Marriage

An examination of human relationships, intimacy, sexuality, and marriage through the social sciences, philosophy, and theology, and exploration of human love in the unconditional commitment to spouse as the expression of divine love. (5 units)

131. Feminist Theologies

Through the analysis of a selected sample of feminist theological voices and themes, explores the phenomenon of feminist theologies in their emerging unity and diversity. Focuses on themes of inclusion, exclusion, and representation, which have also been major catalysts in the emergence of diverse feminist theologies. *Also listed as WGST 149.* (5 units)

133. Trinitarian Theology: East and West

Explores classical and contemporary approaches and challenges to the existence and experience of God. Focuses on the Christian experience of God, and examines the Christian understanding of God as Trinity. (5 units)

137. Theology of Death

An examination of the experience of death and the meaning of Christian hope in light of the death and Resurrection of Jesus; the meaning of the Christian symbols of judgment, heaven, hell, and the end of history. (5 units)

138. Contemporary Theology of Paul Tillich

An examination of the philosophical and theological thought of one of the great 20th-century Protestant theologians, with special emphasis on his theology of culture, and his effort to reinterpret the Christian message for contemporary people. (5 units)

143. Theology and Ethics of Thomas Aquinas

A study of the life, thought, and ethics of Aquinas. Basic topics to be discussed include the existence of God, human nature, and human participation in society. (5 units)

151. Issues in Theology and Science

Explores how theology and science arrive at views of the world and the basis of conversation between theology and science. Theoretical applications drawn by exploring Galileo, Darwin, evolution, cosmological theory, and ecological theology. (5 units)

153. Catholic Themes in Literature

Investigates a Catholic vision through novels and other literature either written by Catholics or using Catholic themes. Extensive reading, writing of reflective essays, and class discussion. (5 units)

156. Christian Ethics and HIV/AIDS

Examines different dimensions of the AIDS pandemic in light of sources and methods in Christian ethics, including theological anthropology, sexual ethics, virtue ethics, fundamental moral theology, and social ethics. Covers related topics including social stigma, the role sexism and poverty play in contemporary transmission rates, and different theoretical proposals and practical responses. (5 units)

157. Ethics in the Health Professions

Introduction to the major issues in biomedical ethics. Basic principles of biomedical ethics, genetic interventions and reproductive technologies, euthanasia, professional responsibilities, confidentiality, and public policy issues regarding the system of delivery of health care. (5 units)

158. Immigration and Ethics

Undertakes an interdisciplinary examination of contemporary immigration with a primary focus on the U.S. context. Social scientific, theological, and philosophical texts, along with Arrupe placement experiences, illuminate ethical assessments of immigration policies and practices. (5 units)

159. Ethics of War and Peace

Examination of the history of moral deliberation about war and peace in Western religious traditions, as well as contemporary, theological, and philosophical analyses of the diverse moral principles that those traditions have generated. Studies the application of theological and moral reasoning to contemporary wars. (5 units)

163. Christianity and Politics

An ethical investigation into the relationship between Christianity and the political order and into the contemporary experience of this relationship, drawing on Scripture, Augustine, Aquinas, Luther, and Calvin. A special focus on contemporary issues of Christianity and political ethics. (5 units)

164. Religious Ethics in Business

This course is an introduction to religious ethics in a business setting. Discussions include how one might live their religious ethics at work without compartmentalizing their faith tradition when religious faith or ethics conflict with business ethics. Cases may include: deception in advertising and marketing; flawed products; affirmative action; environment and pollution; discrimination; workplace issues. (5 units)

165. Romero and the Salvadoran Martyrs

The age of martyrs is not a relic of the past but a reality of our own times. In many parts of the world, people are being murdered for their faith. This course will focus on the life of the martyr, Archbishop Oscar Romero of El Salvador, and other Salvadoran men and women whose life and death exemplify the consequence of a socially conscious faith. (5 units)

175. Women's Theologies from the Margins

Women of diverse cultural communities enrich theology by voicing their lived experience from global and local perspectives. Course explores the theological works of African-American, Asian-American, and U.S. Latina women in their historical and cultural contexts. *Also listed as WGST 151.* (5 units)

176. Nature, Humanity, Spirituality

Nature and the human soul within the Universe Story. An inquiry into the pervasive longing for meaning; human development and spirituality within an evolutionary framework; cultivating wholeness and community in a fragmented world. This course gives students the tools and processes to think theologically, to access their personal lives, and to develop a practical spirituality, which attends to their experience in the ongoing relationship among and between the Absolute Mystery, the human community, and the rest of creation. (5 units)

183. Ignatian Spirituality

An exploration of the historical background, sources, theology, and practice of Ignatian spirituality in the Spiritual Exercises of St. Ignatius of Loyola and other Jesuit documents, and a comparison of Ignatian methods of meditation and contemplation with other traditions of spirituality, Christian and non-Christian. (5 units)

184. Jesus Across Cultures

An exploration and study of selected significant and diverse interpretations of Jesus of Nazareth, and of the historical and cultural contexts that have shaped images and theologies of Jesus Christ (or Christologies). Approaches include biblical, Asian, African, Latin American, and feminist interpretations. The aim is critical exposure to the cross-cultural diversity of understandings of Jesus within Christianity itself. (5 units)

185. Foundations of Faith

A careful and critical reading of Karl Rahner's theology, with focus on his understandings of the human person, grace, and Christ within the context of Catholic faith. (5 units)

187. Christ and Catholic Theology

A study of contemporary Catholic Christology approached as Christology "from below." Initial consideration of some fundamental theological concepts and then Jesus Christ as a historical figure and object of faith. Course pivots around Jesus' proclamation of the "Kingdom of God" and considers his history through the resurrection. (5 units)

192. Religion and the Ecological Crisis

Explores the relationship of religion to the anthropogenic ecological crisis, in particular in regards to biodiversity loss, climate change, and adequate religious responses. Divided into three parts, the course will first offer a scientific introduction into the ecological crisis; then secondly, analyze how different religious traditions conceive of nature and humanity; and finally, engage contemporary religious environmental activism and its ethical foundations. (5 units)

198. Practicum

(1–5 units)

199. Directed Reading and Research

For religious studies majors only. (1–5 units)

LOWER-DIVISION COURSES: RELIGION AND SOCIETY (RSOC)

7. South Asian Religious Traditions

Introduction to the major religious traditions of India and neighbors: Hinduism, Buddhism, Jainism, Sikhism, and Islam; historical development of each faith; what is distinctive in each tradition; and particular attention to the ways in which these traditions have influenced each other. (4 units)

9. Ways of Understanding Religions

Introduces the categories by which religion is formally studied. Explores distinct perspectives or ways of thinking about religion (e.g., psychological, phenomenological, anthropological, theological, and sociological); also considers a variety of religious data (e.g., symbols, myths, rituals, theologies, and modern communities). (4 units)

10. Asian Religious Traditions

This course will introduce students to the history, major teachings, and practices of the major Asian Religious traditions of South, Central, East, and Southeast Asia, namely Hinduism, Jainism, Buddhism, Sikhism, Confucianism, Daoism, and Shintoism. It will do so from a historical perspective, and will also explore the development of key theological and religious/philosophical doctrines as well as the associated practices. (4 units)

12. Latinos and Lived Religion in the United States

This course introduces students to the ethnic and religious diversity among Latinas and Latinos living in the United States. Students will be exposed to the ways in which Latinos appropriate Christian, Indigenous, and Afro-Latino religions in their everyday lives. (4 units)

19. Egyptian Religious Traditions

An investigation of the ways in which Egyptian culture has been shaped by the religious traditions of ancient pharaonic polytheism, Coptic Christianity, and Islam. Attention to the influence of pharaonic religion on Coptic Christian and Egyptian Muslim ritual practices, including how these are reflected in the writings of contemporary Egyptian Muslim authors. (4 units)

33. Maya Spirituality

Introduces the spirituality of the Maya, and its roots in Mesoamerican culture. Course focuses on the contemporary public reemergence of ancient practices, with attention to Maya participation in evangelical religions, and enculturated Catholicism. (4 units)

38. Religion and Culture: Africa

Introduces the study of religion from the social perspective of how religion shapes African cultures and is thoroughly shaped by them in turn. Examines texts, history, ritual practices, and modern forms of engagement with the world. (4 units)

46. African Religions

Examination of African history and its many cultures through the lens of key religious ideas, practices, and cosmologies. The power of history, geography, and political domination over the shaping of religion is matched by the power of religion as a medium of cultural expressiveness and political resistance. (4 units)

49. Religion, Politics, and Civil Society

What should be the relationship between religion, politics, and civil society? Some people think that particular religious tradition should play no part; others believe that it should. This course considers these arguments as well as exploring the interplay between religion, political behavior, and civil engagement, not only in the United States but around the world. (4 units)

51. Religion in America

Traces the development, character, and impact of religion in America from the precolonial era to the present. Course readings and discussions will center on the relationship between religion and the development of American culture. Includes Native American traditions; slavery and religion; the rise of revivalism; gender; religion and war; immigration; and modern pluralism, etc. (4 units)

54. Comparative Religion and Social Theory

A survey of recent social theory as it bears on the comparative study of religious traditions. Theorists might include Durkheim, Weber, Malinowski, Freud, Alfred Schutz, Jan Patocka, Peter Berger, Robert Bellah, Clifford Geertz, Jurgen Habermas, and Niklas Luhmann. (4 units)

67. Film and Judaism

Uses a variety of readings and films to explore the ideas and experiences that have shaped Jews and Judaism in the modern period. Topics include Enlightenment and emancipation, Hasidism and secularism, Zionism and socialism, immigration and assimilation, anti-Semitism and the Holocaust, denominationalism, feminism, Jewish Renewal, and the future. (4 units)

81. Islam

Introduction to the Islamic tradition focusing on the dialectic between normative theology and popular devotion. Readings include the Quran, Sufi literature, and devotional poetry. Discussion of Quranic concerns in the Sunni and Shia traditions, ecstatic mysticism, Islamic law, and contemporary issues relating to the status of women, Westernization, and modernity. (4 units)

85. Hinduism

Exploration of the historical development, theologies, symbols, rituals, scriptures, social institutions, and 20th-century politics of Hinduism, primarily in India. Main focus on the interaction of religion and culture. (4 units)

86. Buddhism

Exploration of the whole Buddhist tradition, including Indian origins, Theravada traditions of Southeast Asia, Mahayana traditions of Central and East Asia, and Buddhism in the West. Emphasis on cultural impact of religion, Buddhist philosophy and practice, and modernizing tradition. (4 units)

87. Buddhism and Film

Explores the portrayal of Buddhism in contemporary global cinema. Covers key teachings of Buddhist religious traditions, and provides an introduction to the field of film studies, with particular focus on the skills needed to write critically about film. (4 units)

88. Chinese Religions

Focuses on the historical development of Chinese religions—Confucianism, Daoism, and Buddhism—and their philosophies, as well as the interface between folk religion, society, and political institutions in traditional and modern China. (4 units)

90. Theories and Methods

A survey of various approaches to the study of religion, scripture, and the theological disciplines, focusing on hermeneutical (interpretation) theories in each of these approaches. The course involves in-depth reading, discussion, and application of hermeneutical methods to religious, ethical and theological texts, rituals and liturgies, and art, architecture, and music. (4 units)

91. Native Spiritual Traditions

Introduction to Native American spiritual traditions in the Americas. Examines myth, the diversity of ceremonial practices, and the historical and political contexts in which native peoples have manifested and adapted their religious ways, with an emphasis on their recent reaffirmation of indigenous traditions. (4 units)

99. Sociology of Religion

Using early and American Christianity as examples, this class examines how various social forces shape the religious beliefs and practices of people of faith. In particular it draws on a number of sociological perspectives, looking both at their historical and philosophical underpinnings and at what they can tell us about religious growth, faith in the modern world, and religiously inspired social action. (4 units)

UPPER-DIVISION COURSES: RELIGION AND SOCIETY (RSOC)

106. Zen in Theory and Practice

Explores the Chan/Zen traditions of East Asian Buddhism from the historical, theoretical, and practical perspectives. Students will explore the history and teachings of the Zen traditions, and then will learn how to undertake Zen meditative practice. The focus will be on bringing the teachings and tradition to life by experiencing them and learning about the way that practice itself drives changes in theory. (5 units)

111. Inventing Religion in America

Explores the spiritual creativity that stands at the center of the American experience and asks what characteristics facilitated such religious diversity. Looks at beliefs and practices, and also historical contexts. Includes Mormons, Christian Science, Jehovah's Witnesses, the Nation of Islam, Scientology, and Heaven's Gate, etc. (5 units)

113. Buddhism in America

Following a survey of Buddhist teachings and the history of the transmission of Buddhism to America, this course explores the diverse array of Buddhist groups in Silicon Valley. (5 units)

115. Tibetan Buddhism: A Cultural History

Provides an overview of Tibetan religious history and the fundamental beliefs and practices of Tibetan religious traditions. Focuses on devotional traditions centering around saints, sophisticated systems of meditation and ritual, and the experience of women in Tibetan Buddhist traditions. Also explores visual media such as iconography and cinema. (5 units)

119. Media and Religion

Examines the religious, theological, and ethical issues and perspectives raised by various media: print, visual, audio, multimedia, and virtual. Special attention will be given to the nature of their relationship and the religious and spiritual issues currently present in their interface. (5 units)

121. Representing Religion in World Cinema

Examines films from various cultures and the ways religion is portrayed, stereotyped, and represented in them. Investigates both sacred texts and traditions of specific religions and the ways film enhances, provokes, or misrepresents various religious themes and motifs. (5 units)

123. Religions@Silicon Valley

Is something unique happening in Silicon Valley's religious landscape? This seminar addresses that question through different perspectives on the Valley's culture; scholarly approaches to the Buddhist, Catholic, and Muslim experiences in America; and interactions with local congregations. (5 units)

130. East Asian Buddhism

Explores in depth the major traditions of East Asian Buddhism. Following a brief survey of their teachings and history, this course focuses on several traditions (Chan/Zen, Pure Land Buddhism, and Soka Gakkai) that are represented in the Silicon Valley area, and examines in depth the practices advocated by these traditions, as well as the social implications of these practices. (5 units)

131. Tantra in Theory and Practice

Examines the development and global spread of tantric traditions. Beginning with South Asia, explores the development of the body-oriented tantric movement and its institutionalization in Hindu and Buddhist religious contexts. Explores spread of tantra throughout Asia and the West, and transformation of tantric traditions in Western cultural contexts. (5 units)

134. Religion and Secularism

Is the new atheism—and by extension, therefore, philosophy—in some genuine sense a religious tradition? This course will explore the meaning and sources of the so-called "new atheists" (C. Hitchens, R. Dawkins, S. Harris, D. Dennett). We will see that the conflict between the new atheists and the religions has a long varied history with the new atheists representing one strand of philosophy. We will flesh out this particular philosophical sub-history, as well as alternative views of the religions that develop and exist alongside the stridently atheistic, materialist forms of philosophy. (5 units)

135. Architects of Solidarity

Starting with the Jesuit claim of education for "solidarity for the real world," students explore the rhetorics of solidarity in different intellectual and faith traditions and how these rhetorics frame issues such as poverty, intolerance, suffering, and globalization to inspire and justify action on behalf of others. Course requirements include field work with local organizations whose missions include solidarity across religious, economic, ethnic, or geographic differences. (5 units)

136. Religion in Latin America

Develops intellectual tools to explore with depth and clarity the recent religious pluralism in Latin America and the Caribbean. Examines distinct historical legacies; sociocultural contexts; political and economic processes; and the role that faith, belief, and "conversion" play in people's lives and cultures. (5 units)

139. Mexican Popular Catholicism and Gender

From a sociology of religion perspective, this course explores the historical roots and contemporary manifestations of Mexican popular Catholicism in the U.S. and Mexico with a special focus on women's contributions. *Also listed as ETHN 129 and WGST 152.* (5 units)

140. Animals, Environment, and World Religion

An investigation of the resources offered by world religions for addressing current crises related to the status of animals and the natural environment. Attention will be given to traditional views of human-animal relations as reflected in various scriptures, as well as the work of contemporary thinkers who offer new perspectives on environmental theology and issues such as animal suffering. (5 units)

149. Science, Religion, and Global Warming

Explores religious responses to the problems and ethical dilemmas of global warming. Special attention will be paid to world religions' historical relationship with the environment and how contemporary religious, social, and ethical perspectives generate debate on the science of climate change. (5 units)

154. The Islamic Jesus

Investigation of various understandings of Jesus in Islam, beginning with an introduction to Islamic theology and Qur'anic Christology, emphasizing Muslim scriptural understandings of Jesus as a prophet and healer, followed by representations of Jesus in Sufi mysticism, medieval Islamic folklore, and modern Arabic literature, with consideration of how Jesus can play a role in Muslim-Christian dialogue. (5 units)

157. Religious Traditions and Contemporary Moral Issues

Explores selected moral issues and analyzes responses given to these issues by the selected religious traditions. Issues to be analyzed will include those pertaining to human life (e.g., euthanasia, HIV/AIDS), human sexuality (e.g., marriage), and global issues (e.g., war, environmental degradation, and poverty). The central approach will be to compare and contrast Western responses with responses from other cultural and religious systems in order to highlight points of difference, points of similarity, and common ground. (5 units)

159. Longings for Immortality

A chance to read the core texts that formed visions of the afterlife in Western though, including Gilgamesh, selections from Homer, Hesiod, Plato, Cicero, Vergil, Hebrew and Christian scriptures, the Qur'an, Dante, and Galileo. Then, turning to the world around us, we'll explore some of the refractions of these visions in contemporary film and literature and writings about cyberspace. Along the journey, we'll ponder the implications of personal survival and death—both for the individual and society. (5 units)

168. Gender and Judaism

Explores ideas and images of Jewish "femininity," "masculinity," and "queerness" generated by Jewish and non-Jewish cultures throughout history to the present. Considers the political/economic, religious, and other cultural dimensions of these images and ideas. *Also listed as WGST 145.* (5 units)

170. Religion, Gender, and Globalization

Using feminist ethics as a framework, this course examines the ethical issues at the intersection of religion and globalization and unpacks the implications of this intersection for women. Focuses on the human rights of women and examines ways in which globalization has affected, supported, or undermined the human rights of women and the role of religion in their lives. *Also listed as WGST 146.* (5 units)

174. Jewish Philosophy: Athens and Jerusalem

"Athens" represents the philosophical world; "Jerusalem" the world of faith. An introduction to the history and major themes within modern Jewish thought. Topics investigated include secularism, capitalism, Romanticism, Marxism, critical theory, postmodernism, feminism, political theory, and prophetic politics as articulated in Judaism's encounter with modernity. These topics are united by Judaism's struggle to achieve a universal vision of hope for human redemption and liberation. (5 units)

182. Shia Islam in the Contemporary World

An investigation of Shia theory, the historical origins of Shiism (especially the Twelver and Zaydi denominations), and Shia-Sunni relations in the contemporary Islamic world. Particular emphasis on issues of ritual and communal identity in Pakistan, India, Yemen, and diasporà communities in North America. (5 units)

184. Race and Religion in the United States

Begins with an examination of the living situation of people of African descent in the United States, as well as an analysis of their social context—economic, educational, and political aspects. Considerations are then given to the effects the Christian message has had in this situation. (5 units)

188. Religion and Violence

Examines the historical and contemporary relationships between religious ideologies and personal and institutional practices of coercion, force, and destruction. (5 units)

190. Islam: Reformation and Modernity

Comparative study of contemporary Islam. Beginning with the study of origins and basic doctrines of Islam, this course will study its development to the modern world. Main focus will be on Islam's interaction with different cultures, emphasizing political implications of the rise of revivalism. (5 units)

191. Religions of Colonized Peoples

The aim of this course is to analyze from an insider perspective the role of religion both in the process of colonizing Africa as well as in the process of resistance to colonization. This will include an examination of the role of religion in the African struggle against political oppression, economic injustices, racism, and cultural imperialism. Students will then critically analyze the social-political implications of religion in their own contexts. (5 units)

194. Modern Religious Thought

An advanced inquiry into the development of religious thought in the modern era. Modern religious thinkers have had to confront and deal with two related problems: the alienation of many people from traditional religions and the rise of atheistic forms of thought and life associated with the Western philosophical tradition. Special attention will be paid to the relation of Enlightenment and post-Enlightenment philosophers and philosophical movements to developments in religious thinking. Figures to be considered will include Kant, Schleiermacher, Barth, Rahner, Nishitani, and Milbank. (5 units)

198. Practicum

(1–5 units)

199. Directed Reading and Research

For religious studies majors only. (1–5 units)

DEPARTMENT OF SOCIOLOGY

Professors: Marilyn Fernandez, Alma M. Garcia, John C. Gilbert (*Interim Department Chair*), Charles H. Powers
Associate Professors: Laura Nichols
Assistant Professors: Patrick Lopez-Aguado, Laura Robinson

The Department of Sociology offers a degree leading to a bachelor of science in sociology. A solid undergraduate foundation in sociology secures the analytical skills needed to undertake professional degree programs in sociology, business, law, and social services or to embark on a number of careers from management to research. A minor in sociology is available. Honors thesis options also are offered to qualified majors.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in sociology must complete the following departmental requirements:

- SOCI 1
- ANTH 3
- SOCI 118, 119, and 120
- SOCI 121 or 122
- Five other approved upper-division courses in sociology (at least two each from two of four clusters: criminology/criminal justice, immigrant communities, inequalities, organization/institutions)

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in sociology:

- SOCI 1, 33, 117
- Three other approved upper-division sociology courses excluding SOCI 118, 119, 120, 121, and 122

LOWER-DIVISION COURSES

1. Principles of Sociology

Introduction to the field of sociology. Emphasis on the major sociological perspectives and the basic elements of sociological analysis. Introductory exposure to research methodology. (4 units)

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Course one will cover disruption of global cultures in the context of social and economic history and course two will cover emerging global cultures in the age of the Internet. *Successful completion of C&I I (SOCI 11A) is a prerequisite for C&I II (SOCI 12A).* (4 units each quarter)

30. Self, Community, and Society

Exploration of a specific topic related to the self, community, and society. Use of sociological theories, research, community-based learning, and civic engagement activities to help students analyze and explore the role of the individual in influencing community and society as well as how the individual is shaped by these entities. (4 units)

33. Social Problems in the United States

Overview of contemporary social problems in the United States from a sociological perspective, with a major emphasis on the ways race, class, and gender shape the development of specific social problems and the public policies offered to address them. Topics may include the economy, poverty, homelessness, and social inequality. (4 units)

49. Computers, the Internet, and Society

Examines the impact new media and computer technologies have had on society as well as the role of individuals, groups, and societies on the development of this technology. Looks at the transforming or potentially transforming effects of communication technology on civic engagement. *Prerequisite: Completion of social science requirement in the Core.* (4 units)

65. Crime and Delinquency

Broad survey of major issues surrounding the causes and nature of, and solutions to, the problem of crime and delinquency in the United States. (4 units)

91. Lower-Division Seminar in Sociology

Seminar for first-year students and sophomores on selected issues in sociology. *By permission of the instructor and sociology chair only. May be repeated once for credit if topic changes.* (4 units)

UPPER-DIVISION COURSES: THEORY, METHODS, AND CAPSTONES

117. Sociology's Analytical Frameworks and Conceptual Approaches

Considers sociology as an integrated and coherent discipline by reviewing the development of different analytical frameworks which, when considered together, convey much of the conceptual power and rich history of the discipline. Required of all sociology minors. *Does not fulfill the SOCI 119 requirement for the major.* (5 units)

118. Qualitative Methods

Provides students with an understanding of qualitative methods for social research by focusing on (1) classical and contemporary sociological works employing qualitative methods; and (2) a selection of qualitative methods and techniques in sociology. Students gain hands-on experience by producing a series of qualitative research projects. *Prerequisites: SOCI 119 and 120.* (5 units) NCX

119. Sociological Theory

Provides an overview of sociological theory stressing the role of theory in the scientific method. Required of all majors. *Does not fulfill the SOCI 117 requirement for the minor. Prerequisites: SOCI 1 and concurrent enrollment in SOCI 120.* (5 units) NCX

120. Survey Research and Statistical Analysis

Application of quantitative research designs and statistics to empirically examine sociologically relevant research questions, with attention to the scientific reasoning behind quantitative methodology. Statistical analyses conducted using a statistical package such as SPSS. *Prerequisites: SOCI 1 and concurrent enrollment in SOCI 119.* (5 units) NCX

121. Research Capstone

Collaborative research project conducted under the direction of a faculty member. Sociology majors only. *Prerequisites: SOCI 118, 119, and 120.* (5 units) NCX

122. Applied Capstone

Demonstrates the application of sociological research and insights to the challenges of modern business, human service, and public sector organizations. Practice components bring students into contact with people who are incorporating sociology to improve the functioning of their organizations and to inform policymaking. Sociology majors only. *Prerequisites: SOCI 118, 119, and 120.* (5 units) NCX

UPPER-DIVISION COURSES: CRIMINOLOGY/CRIMINAL JUSTICE CLUSTER

158. Sociology of Deviance

Examines noncriminal violation of social norms from a variety of sociological perspectives. Topics typically include eating disorders, relationship abuse, child abuse, sexual harassment, substance abuse, and homosexuality. Theoretical emphasis on classical and contemporary critical theory, including feminist, critical race, and queer perspectives. (5 units)

159. Sociology of Crime

Examines criminal behavior on the aggregate level, and its effects in the United States and other societies. Topics typically include sexual assault and domestic violence, homicide, global terrorism, corporate, and political crime. Theoretical emphasis on classical and contemporary critical and social justice perspectives. (5 units)

160. Sociology of Law

Survey of classical and contemporary sociological theories of law and society. Topics typically include the social construction of law; law and capitalism; law and social solidarity; gender, race, and class inequality and the law; and private/public divisions and the law. (5 units)

161. Sociology of Criminal Justice Systems

Examines criminal justice systems in the United States and other countries from a comparative perspective. Topics typically include law enforcement, the courts, corrections (prisons and probation), and juvenile criminal justice systems. Theoretical emphasis on classical and contemporary critical and social justice perspectives. (5 units)

162. Gender and Justice

Topics relevant to gender and justice related to criminology and criminal justice systems, with a particular emphasis on the experiences of women and justice. (5 units)

UPPER-DIVISION COURSES: IMMIGRANT COMMUNITIES CLUSTER

137. Social Change

Examines significant trends and issues in contemporary United States society and in the world with an emphasis on social change as it relates to migration. Introduces utility of sociological concepts, principles, theories, and applications for understanding social change. (5 units)

138. Populations of India, China, and the United States

Using India, China, and the United States as case studies, students will understand the historical and current trends in global population growth, as well as the critical social, cultural, economic, and environmental factors that impact and are impacted by population change. They will also critically learn about the methods used to derive demographic data that are available to educate and aid in the process of informed decision making. (5 units)

150. Immigrant Businesses in the United States

Immigrant businesses represent a growing sector within the United States economy and contribute to social, political, and cultural changes in the United States. Examines the development and significance of immigrant business owners and the communities within which their businesses are located. *Also listed as ETHN 170.* (5 units)

180. Immigrant Communities

Explores the impact of immigration to the United States, particularly the effect of the immigration reform law of 1965 that resulted in large increases in immigration to the United States, particularly from Latin America and Asia. This wave of immigrants and their United States.-born children has significantly changed the fabric of American society. Examines case studies of immigrants and the second generation from Cuba, Mexico, Nicaragua, Vietnam, and Haiti using a comparative sociological perspective. *Also listed as ETHN 171.* (5 units)

UPPER-DIVISION COURSES: INEQUALITIES CLUSTER

132. Social Stratification

Explores analysis of the principal lines of social cleavage within United States. society. Emphasizes the racial, sexual, ethnic, occupational, and class divisions prevalent in the contemporary world and current policy responses. (5 units)

134. Globalization and Inequality

Encompasses overview of globalization as a long-term historical process. Focus on the impact in the developing world; on people moving from the developing to the developed world; the displacement of some and new opportunities for others during different periods of globalization; and the long-term implications of privilege and marginality that globalization has produced. Examination of case material based on Latin American, African, and Asian historical experiences; exploration of theoretical models of high rates of poverty in the developing world; and practical steps to reduce marginalization on a global scale. (5 units)

135. Women and Social Change in Latin America

Examination of the relationship between gender and the process of national and international factors related to social change in Latin America. Emphasis on selected case studies such as Mexico, Guatemala, Bolivia, and El Salvador. *Also listed as WGST 128.* (5 units)

140. Urban Society and Social Conflict

Involves critical inquiry into urban sociology and theoretical and practical exposure to urban issues. Explores unresolved paradox in how we understand urban life; role of structural and cultural conditions in creating or adding to urban problems; and issues such as poverty, immigration, housing, and the political economy of urban America. (5 units)

153. Race, Class, and Gender in the United States

Examines the sociological nature of the intersectionality of race/ethnicity, social class, and gender by focusing on the interrelationships among social institutions, power relationships, and cultural patterns. May also focus on the impact of popular culture on the social construction of social identities. *Also listed as WGST 115.* (5 units)

165. Human Services

Provides an introduction to the field of human services. Topics include the connections between societal understanding of social problems, programs, and policies; work and management issues in public and nonprofit human service agencies; human services in a multicultural context; and opportunities to learn through community-based placements serving marginalized communities and from human service professionals. (5 units)

175. Race and Inequality

Examines the racial/ethnic inequality that African, Asian, Hispanic, and Native Americans and other groups experience in contemporary United States society. This course covers theories of race and ethnicity, examines empirical research on a range of topics (poverty, social class, assimilation, identity, segregation, stereotyping), and explores the meaning and consequences for racial/ethnic inequality in the future. (5 units)

UPPER-DIVISION COURSES: ORGANIZATIONS/INSTITUTIONS CLUSTER

127. Group Dynamics

Explores the structure and social processes that occur in small and large groups. Concepts such as power and prestige, leadership, communication networks, collaboration and conflict, game theory, and distributive justice are examined. (5 units)

148. Stakeholder Diversity in Contemporary American Organizations

Offers a serious exploration of both the ethical and practical challenges posed by the diversity of stakeholder interests in organizations. Critical reflection on the implications of client-centered approaches to organizational activity for people working in organizations, and also for structure, culture, communication, and process in those organizations. Requires a community-based learning placement working alongside and/or in the service of persons who are marginalized in the local community. (5 units)

149. Business, Technology, and Society

Examines the impact business and society have had on the development of science/technology and the transforming or potentially transforming effects of changing science/technology on business and society. (5 units)

152. Women and Men in the Workplace

Examines the status and roles of men and women in the labor force. How gender differences are developed through socialization and some of the consequences of these differences: tokenism, sexual harassment, the "glass ceiling," and the dual-career family. Includes strategies to address gender inequality in the workplace. *Also listed as WGST 181.* (5 units)

157. Sociology of Family

Examines how family forms have changed over time in the United States, including the macro causes and consequences of different family structures and role expectations. Patterns and dynamics of dating, family formation, child-rearing, divorce, and extended family support systems are also covered. *Also listed as WGST 182.* (5 units)

163. Sociology of Work and Occupation

Examines ideological and institutional characteristics of modern industrial society and some of its basic problems, such as alienation, affluence and work motivation models, primary group influences, and leadership behavior. (5 units)

164. Collective Behavior

Involves analytical study of collective behavior principles: typology of crowds, mass behavior, and the characteristics of publics. Includes an introduction to social movements. (5 units)

172. Management of Health Care Organizations

Explores the sociological and practical issues of operations, financing, and management in organizations providing services for people with health problems (organizations such as nursing homes and hospitals) or people with infirmities (organizations such as senior care centers and assisted living facilities). (5 units)

UPPER-DIVISION COURSES: OUTWARD BOUND

125. Honors Thesis

Ordinarily requires an overall GPA of 3.3, a GPA of 3.5 in the major, completion of SOCI 121, and approval of a thesis proposal defining a topic, outlining a theoretically driven research design, and having a timetable for conducting various stages of the research. *May be taken only with special permission of the sociology chair.* (5 units)

195. Silicon Valley Notebook

Provides Sociology seniors, who have successfully completed Sociology 121, the opportunity to improve the professional quality of their research capstone papers for possible inclusion in the department's journal. *Prerequisites: SOCI 121 and recommendation of SOCI 121 faculty.* (5 units)

198. Internship

Presents an opportunity for students to employ sociological insights in human service/community, government, or business organizations. Students spend the majority of class time off campus and then reflect on their experiences through meetings with a faculty member and papers. May be repeated once for credit, under certain circumstances and with the approval of the sociology chair. *Written departmental approval necessary in the quarter prior to registration. Prerequisites: An overall GPA of 2.7 or permission of the sociology chair.* (5 units)

199. Directed Reading/ Directed Research

Involves intensive reading in areas not emphasized by the department. Independent research on specific topics not fully covered in departmental courses. May be repeated once for credit, under certain circumstances and with the approval of the sociology chair. *Written departmental approval necessary in the quarter prior to registration.* (5 units)

UPPER-DIVISION COURSES: OTHER

133. Politics and Society in Developing Societies

Explores social and political change in the Third World. Content includes relationship between economic and social development and the emergence of democratic, authoritarian, or revolutionary regimes in Africa, Asia, and Latin America. Emphasis is on ways in which the international system influences development through investigation of theories of interdependence, dependency, and neoimperialism. (5 units)

168. Political Sociology

Involves analysis of power relations in the United States and examination of different dimensions of power. Particular emphasis is on the development of social protest movements. (5 units)

176. Elder Law

A survey of public policy issues particularly affecting the elderly. Includes consideration of the legal aspects of death and dying, involuntary commitment, guardianship and conservatorship, age discrimination, public benefit programs, and nursing homes. (5 units)

190. Advanced Seminars in Sociology

Seminars for juniors and seniors on selected issues in sociology or current problems of social relevance. *May be repeated once for credit if topic changes.* (5 units)

194. Peer Educators

Peer educators in sociology work closely with a faculty member to help students in a course understand course material, think more deeply about course material, benefit from collaborative learning, feel less anxious about testing situations and/or to help students enjoy learning. *Enrollment is by permission of the instructor.* (1–2 units)

DEPARTMENT OF THEATRE AND DANCE

Professor Emeritus: Frederick P. Tollini, S.J.
Professors: Aldo Billingslea, Barbara Fraser, Barbara Murray
Associate Professors: Jerald R. Enos, Kimberly M. Hill, David J. Popalisky (*Department Chair*), Michael Zampelli, S.J. (*Paul L. Locatelli, S.J. Professor*)
Assistant Professor: Courtney Mohler
Senior Lecturers: Derek Duarte, Kristin Kusanovich, David Sword
Lecturers: Karyn Connell, Pauline Locsin-Kanter, Patt Ness

The Department of Theatre and Dance celebrates the creativity of the human spirit, offering a well-rounded education that leads to a bachelor of arts degree in theatre arts with emphases in either theatre or dance. The department also offers minors in theatre, dance, and musical theater (an interdisciplinary minor offered in collaboration with the Department of Music). The program emphasizes academic rigor, artistic discipline, and creative expression. All students work closely with faculty and staff mentors. Majors fulfill all requirements set forth by the Undergraduate Core Curriculum, the College of Arts and Sciences, and the Department of Theatre and Dance.

Theatre and dance are distinct but related areas of emphasis. While each has its own set of disciplinary standards and academic requirements, students in each emphasis share some common courses (e.g., Introduction to Performance Collaboration, Defining the Performing Artist, etc.)

The theatre emphasis offers coordinated courses in acting, design, theatre history, dramatic literature, technical production, directing, and playwriting. Students with this emphasis will have a broad foundation in theatrical practice and may choose to focus their study in any of the aforementioned areas. The dance emphasis focuses on modern dance and choreography and provides additional training in ballet and jazz. Majors, in either emphasis, will complete their program with a senior project that demonstrates their proficiency in a chosen area.

All students are encouraged to be creative in taking responsibility for their undergraduate education, working with advisors and mentors to plan programs that marry courses in their focus areas to other disciplines. Since courses in theatre and dance provide students with invaluable experience in collaboration, critical thinking, organizational management, and effective communication skills, they may profitably combine a major in theatre arts with a major (or minor) in almost any other discipline—especially, English, music, communication, art, psychology, political science, history, or business. Students also combine their theatre arts major with various education credential programs.

A degree in theatre arts prepares students for a variety of career options. Some students pursue graduate study in specialized focus areas so as to become professional theatre or dance artists and teachers. Others pursue careers in professional theatre or dance companies immediately after graduation. Still others venture into the world of film, television, arts administration, education, and religious ministry. Many have used their performing arts experience to pursue careers in law, medicine, management, and marketing and development.

The performance season, sponsored by the department, includes four faculty-directed plays and two dance concerts, in addition to student-directed plays and dance recitals. Participation in these productions is open to all members of the University community—students, faculty, and staff. Guest artists periodically direct, design, choreograph, and/or perform in productions with SCU students.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling undergraduate Core Curriculum and College of Arts and Sciences requirements for the bachelor of arts degree, students majoring in theatre arts must complete the following departmental requirements:

Emphasis in Theatre

- THTR 9, 10, 24 , and 30
- THTR 41A, 42B
- One course from THTR 31, 32, 33
- THTR 185
- One course from THTR 112, 113, 116, 117, 118, 161, 167
- DANC 159 or 189
- Three approved 5-unit upper-division theatre or dance electives
- 4 units of THTR 39/139
- Senior Project may be fulfilled by one of the following courses: THTR 192, 195, 196, 197 (*see description below)

Emphasis in Dance

- THTR 9, 10 and 30
- DANC 48 (*prerequisite: DANC 47 or permission of instructor*)
- DANC 49
- One course each in Ballet and Jazz (one at level III)
- DANC 67
- DANC 143 and 146
- Two courses from DANC 140, 141, 142, 145, 147, or 148
- DANC 162 or 166
- DANC 159 or 189
- 2 units of THTR 39/139
- Senior Project may be fulfilled by one of the following courses: DANC 192 or 193 (*see description below)

*Senior Project: The Senior Project provides majors with the opportunity to demonstrate their progress in meeting the learning objectives established by the department. In this capstone course, students will prepare and present a final project in an area of their choosing (e.g., acting, design, directing, playwriting, history, literature, dance choreography, performance art, etc.) The Senior Project, demonstrating both effective leadership *and* collaboration, must include each of the following elements: public presentation, reflection on process (through journaling, etc.) and assessment of progress in addressing department learning goals, and culminating oral presentation.

REQUIREMENTS FOR THE MINORS

Students must fulfill the following requirements for a minor in theatre or dance:

MINOR IN THEATRE

- THTR 10, 8 or 24 , 30
- One course from THTR 41A or 42B
- Four 5-unit upper-division theatre and dance electives
- 2 units of THTR 39/139

MINOR IN DANCE

- THTR 10
- DANC 48 (*prerequisite: DANC 47 or permission of instructor*)
- DANC 49
- One course each in Ballet and Jazz (one at level III)
- DANC 143 and 146
- One course from DANC 140, 141, 142, 145, 147, or 148
- One 5-unit upper-division theatre and dance elective
- 2 units of THTR 39/139

LOWER-DIVISION COURSES: THEATRE

7. Improv

Designed for majors and nonmajors, Improv seeks to expand the participant's capability for spontaneity, flexibility of thought, creativity, communication, and teamwork through the use of theatre games and specifically structured improvisation exercises. No previous acting experience is necessary for this course. Every level of performer or nonperformer will have something to contribute and learn from this experience. Topics such as the impact of status on relationships, nonverbal communication, staying positive, building on ideas offered by others, and developing narratives will be explored throughout this class. (4 units)

8. Acting for Nonmajors

Through standard theatre games, exercises, monologues, and scenes, students will explore, via Stanislavski's "method of physical action," basic principles of the acting craft. (4 units)

9. Defining the Performing Artist

Being in tune as a performing artist means being aware of the connection between body, mind, and spirit. Topics include discussion of professional résumés, head shots, auditions, and career choices. Also, the implications of being a performing artist, body image and awareness, self-esteem, lifestyle/health choices, nutrition and diet, and stress management strategies. (4 units)

10. Introduction to Performance Collaboration

This course focuses on the collaborative process leading to a group-produced play or creative performance piece. The class includes exploration of creativity and performance through acting, dance skills, text, and concept analysis. Participants will be exposed to all elements of theatrical experience and collaborative expectations of the discipline. (4 units)

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address creativity and the use of space, the performing arts as reflections and constructions of culture, and other topics. *Successful completion of C&I I (THTR 11A) is a prerequisite for C&I II (THTR 12A).* (4 units each quarter)

14. Chicana/o and Native American Theatre

An exploration of Chicana/o and Native American plays, artists, and companies in the 20th and 21st centuries. Includes analyses of cultural, economic, political, and gender issues as articulated through the lens of theatre. (4 units)

21. Voice I: Voice, Speech, and Presentation Skills

Using physical exercises, breath work, speech, and resonance exercises, students will expand their knowledge of the mechanics of speech and increase their vocal potential and health onstage or in any public speaking environment. Required for theatre emphasis majors. *Priority given to theatre arts majors/minors.* (4 units)

24. Acting

Foundation of the acting curriculum; theatre games, open scenes, monologues, and scenes are used to explore and acquire a comprehensive process by which to create and sustain a truthful, imaginative, and physical character on stage. Stanislavsky's "method of physical action" and Uta Hagen's "10 Questions" are explored. Application of the concepts of "objective, actions, and qualities of action" are applied to scripted material. Students rehearse and perform scenes from American playwrights. *Priority given to theatre arts majors/minors.* (4 units)

28. Theatre to Go

The development and production of a 40 to 45 minute play from various genres. Topics may include children's theatre, Shakespeare, social justice, and documentary theatre. Plays will be taken out into the community for performance. Projects may be extended into a second quarter, in which case students may re-enroll for additional units. (2–4 units)

29. Rehearsal and Performance

Active participation in the preparation and performance of departmental productions as actors, assistants to the director, dancers, and choreographers. Individual design/technical assignments. May be repeated for a total of 8 units. *Prerequisite: Approval of director of production.* (2 units)

30. Introduction to Design

Explores the role of design as a part of the production process. Includes a study of the elements and principles of design as they apply to scenic, lighting, and costume design. Also included: design development and the role of each designer in the production. (4 units)

31. Introduction to Production

Overview of the organization, concepts, terminology, and skills involved in technical theatre. Hands-on work in the scene shop. (4 units)

32. Costume Construction

Introduction to making costumes: fabric/textile studies, sewing techniques, dyeing and ornamentation, and costume crafts. (4 units)

33. Stage Lighting

Principles and practice. Color, instrumentation, basic electricity, and electronics. Elementary design theory and practice. (4 units)

36. Scene Painting

Introduction into the styles, techniques, and application of scenic art as it relates to the theatre. This includes color theory, light and shadow, and the interpreting of a painter's elevation and/or scenic research for the stage. Projects include wood graining, stone, marble, and foliage. Enrollment in upper division of Scene Painting (THTR 136) is based on completion of the lower division or skill level of the student. The advanced level will deal with historical Trompe'L'Oeil and Grisaille techniques of painting when painting architectural reliefs, fabric/drapery, and ornamentation. Offered in alternate years. (4 units)

37. Graphics and Rendering for Theatre Design

Introduction to graphic representation as applied to scenic design. Theatre-specific graphic conventions used in ground plans, sections, and elevations. Drafting, orthographic projection, mechanical perspective. Offered in alternate years. (4 units)

38. Makeup for Stage

Basic principles of makeup for the stage. Youth, old age, and special problems. (2 units)

39. Production Workshop

Training in development of technical skills for stage production. Directed work in scenery and costume construction, lighting, sound, and stage management. May be repeated for a total of 8 units. Not applicable to paid work hours or to laboratory hours connected with stagecraft courses. (2 units)

41A. Critical Perspectives in Performance A

Explores the dynamic relationships among theatrical space, acting styles, dramatic texts, and audience reception. This course will engage these perspectives with a special focus on performing faith, staging power, and dramatizing identity. (4 units)

42B. Critical Perspectives in Performance B

Explores the dynamic relationships among theatrical space, acting styles, dramatic texts, and audience reception. This course will engage these perspectives with a special focus on staging spectacle, characterizing style, and playing on the global stage. (4 units)

44. Modern American Theatre History: Censorship, Arts Funding, and Theatre Unions

Relationship between the theatre arts and society. Through the study of significant cultural history as well as theatre literature, this course tackles important social justice issues involving censorship, arts funding, theatre unions, and the shaping of American values. (4 units)

65. Drama of Diversity

Addresses issues of race, ethnicity, class, gender, and sexuality through the lens of American theatre by several groups outside of the dominant culture including, but not limited to, works from the African-American, Asian-American, Chicana/o, Native American, and lesbian, gay, bisexual, and transgender (LGBT) perspectives. *Also listed as ETHN 65.* (4 units)

66. People's Theatre

Understanding and appreciation of a form of theatre called People's Theatre, a type of theatre and a process of creating a play based on interviewing marginalized people to gain perspective on social justice issues that are of concern to them. Students will have a hands-on experience of creating a short people's theatre piece and having it performed as a reading in front of an audience. (4 units)

68. Special Topics: Playwrights Workshop

Workshop focuses on the development of a script or performance piece centered on a particular chosen theme. May include research, interviews, improv, and script development. (1–4 units)

80. Musical Theatre Production Workshop

Gives students the opportunity to perform in a musical theatre production workshop that covers the study of songs and scenes from a wide variety of musicals. The class presents an original musical review at the end of the quarter. Offered in alternate years. *Prerequisites for majors and minors: THTR 21, THTR 24 or MUSC 34, DANC 40 or 46.* (4 units)

UPPER-DIVISION COURSES: THEATRE

111. British Drama

Also listed as ENGL 113. For course description see ENGL 113. (5 units)

112. Special Topics: Theatre and Performance

In-depth exploration of specific genres, periods, playwrights, or themes. (5 units)

113. Seminar: Theatre and Performance

In-depth exploration of a specific genre, period, playwright, or theme. (5 units)

116. Shakespeare's Tragedies

Also listed as ENGL 116. For course description see ENGL 116. (5 units)

117. Shakespeare's Comedies

Also listed as ENGL 117. For course description see ENGL 117. (5 units)

118. Shakespeare Studies

Also listed as ENGL 118. For course description see ENGL 118. (5 units)

120. Acting Styles I: Shakespeare

Techniques for performing the works of William Shakespeare and other Elizabethan playwrights. Learn scansion and perform sonnets, monologues, and scenes from plays. *Prerequisite: THTR 10 and 24.* (5 units)

122. Acting Styles II: Acting for the Camera

Specific techniques of acting in commercials, television, industrials, and film. Perform scenes in front of the camera to achieve understanding of the differences and similarities of acting in this media and theatre. *Prerequisite: THTR 10 and 24.* (5 units)

123. Acting Styles III: Musical Theatre

Study of the techniques of acting in this special genre including phrasing, interpretation of lyrics, and auditioning. *Prerequisites: THTR 10, 24, or MUSC 34, or permission of instructor.* (5 units)

124. Acting Styles IV: Scene Study with Dialects

Building on the skill sets obtained in Voice I and Acting I or II, students will continue to deepen the application of their acting and vocal techniques in the study of texts that require a region-specific sound. Students will learn to research and reproduce at least four major dialects used on the stage and screen. Combined with vocal flexibility work, students will apply their dialect research to at least four different monologues or scenes. *Prerequisites: THTR 10 and 24.* (5 units)

125. Acting Styles V: Special Topics

A scene study course that may include auditioning, specific playwrights, or styles—Chekhov, Ibsen, Greek, Absurdist, Brecht, Meisner, or other styles depending on departmental needs or instructor expertise. *Prerequisite: THTR 10 and 24, or permission of instructor.* (5 units)

128. Theatre to Go

For course description see THTR 28. (2–5 units)

129. Rehearsal and Performance

For course description see THTR 29. (2 units)

130. Technical Design

The process of taking scenery from designer drawings to actual set pieces. Transformation of scene designs to carpenter drawings, standard building methods, stage machinery solutions, and budget-regulated design options. Offered in alternate years. (5 units)

131. Sound Design

Principles of the use of sound in theatre production. Emphasis on practical applications and equipment use. Digital audio and playback automation. Offered in alternate years. *Prerequisite: THTR 30 or permission of instructor.* (5 units)

132. Lighting Design

Application of lighting skills to production design. Offered in alternate years. *Prerequisite: THTR 33 or permission of instructor.* (5 units)

133. Scene Design

Application of graphic skills to scenic design. Styles, scene painting technique, set décor. Offered in alternate years. *Prerequisite: THTR 30 or permission of instructor.* (5 units)

134. Costume Design

Principles of costume design for the stage. Application of design elements to convey character and production concepts. Period research, style, and rendering techniques. Offered in alternate years. *Prerequisite: THTR 30 or permission of instructor.* (5 units)

136. Scene Painting

For course description see THTR 36. (5 units)

137. Pattern Drafting and Draping

Drafting and draping techniques for a basic bodice, skirt, sleeve, and collars, and techniques for developing variations. Emphasis on drafting period garments. Offered in alternate years. *Prerequisite: THTR 32 or permission of instructor.* (5 units)

138. Production Management

Designed to acquaint students with the complexities of managing productions from the audition process to final performance. Directing, lighting, scenic production, sound, cueing, budgets, and personnel management are aspects that will be touched upon in class. Offered in alternate years. (5 units)

139. Production Workshop

For course description see THTR 39. (2 units)

151. Fashion, Politics, and Issues of Gender

Historical exploration of fashion not merely as a matter of personal taste, but as a sight for examining the interconnections among power, politics, gender, and ethnicity. The course will consider the role of fashion in constructing gender and ethnic identities, social and political structures, and fomenting revolution. *Also listed as WGST 183.* (5 units)

161. American Theatre from the Black Perspective

An exploration of the contributions black artists have made to enrich the American theatre as playwrights, actors, designers, and directors. *Also listed as ENGL 192.* (5 units)

165. History of American Musical Theatre

A cultural look at musical theatre as an American art form, which has its roots in vaudeville, burlesque, and minstrel shows. Offered in alternate years. (5 units)

167. Gender and Performance

Exploration of issues of gender and sexuality as they are performed in theatre, music, dance, and contemporary performance art. *Also listed as WGST 139.* (5 units)

168. Special Topics: Playwrights Workshop

Workshop focuses on the development of a script or performance piece centered on a particular chosen theme. May include research, interviews, improv, and script development. (1–5 units)

170. Playwriting

Critical analysis of dramatic structure for the playwright. Scenarios, character studies, writing of original plays. *Also listed as ENGL 193W.* (5 units)

171. Advanced Playwriting

Continuation of THTR 170. *Also listed as ENGL 193.* (5 units)

172. Literature and Performance

Adapting literature (poems, novels, short stories, diaries, etc.) for the stage, and writing complete scripts for performance and production. Theories of both narrative and dramatic structures. *Also listed as ENGL 109.* (5 units)

173. Screenwriting

Also listed as ENGL 173. For course description see ENGL 173. (5 units)

180. Musical Theatre Production Workshop

For course description see THTR 80. (5 units)

185. Dramaturgy

Play analysis in the context of theatrical genres and historic period cultures. *Also listed as ENGL 195.* (5 units)

186. Stage Directing

Basic course in the problems, techniques, and theory of directing plays for the live theatre. *Prerequisites: THTR 10 and 185.* (5 units)

190. New Playwrights Festival

In this workshop course, we will engage with the process of moving a play from "the page to the stage." Students will first engage with a series of generative and analytic dramaturgical exercises. Then, working with student actors and directors in a collaborative rehearsal period, students will interact with their play in motion, gaining information of further entry into the work. The class culminates in a festival of staged readings. *Prerequisites: THTR 170 and permission of instructor.* (5 units)

192. Senior Project: Performance

Showcases performance in theatre. May be fulfilled through performance in a department production with the required journal, reflection and evaluation of process and project in light of department learning goals. May also be satisfied through a collaboratively produced performance piece following the same guidelines. *Prerequisite: Must be registered with a faculty advisor.* (2–5 units)

194. Peer Educator in Theatre

Students will assist instructors in theatre classes. *Prerequisite: Mandatory training workshop.* (1–2 units)

195. Senior Project: Design/Technical

Students serve as designers for sets, costumes, lights, or sound, or as technical directors for a departmental production. *Prerequisite: Approval of design faculty.* (5 units)

196. Senior Project: Directing

Project in directing. A short play, fully staged. *Prerequisites: THTR 24, 30, 41, 42, 43, 185, 186. Successful completion of stage crew assignments that include run crew for two departmental productions, and stage manager for a one-act play or departmental play. Permission of the head of the directing program.* (5 units)

197. Senior Thesis

A senior thesis in history/literature/dramaturgy. Written for the advisor in consultation with other committee members. Upon completion of the thesis, an oral defense will take place before a selected committee. *Prerequisite: Faculty approval.* (5 units)

198. Practicum

Reserved for projects with recognized institutions outside the University. *Prerequisite: Written proposal must be approved by instructor and department chair one week prior to registration.* (1–5 units)

199. Independent Study/Directed Reading/Directed Research

Two areas of directed study: creative projects in directing, choreography, technical production, design, playwriting, administration, or directed reading and/or research. *Prerequisite: Written proposal must be approved by the instructor and department chair one week prior to registration.* (2–5 units)

LOWER-DIVISION COURSES: DANCE

4. The Physics of Dance

Explores the connection between the art of dance and the science of motion with both lecture/discussion sessions and movement laboratories. Topics include mass, force, equilibrium, acceleration, energy, momentum, torque, rotation, and angular momentum. Movement laboratory will combine personal experience of movement with scientific measurements and analysis, in other words: "dance it"—"measure it." This is a lab science course, not a dance technique course. *Also listed as PHYS 4.* (4 units)

29. Rehearsal and Performance

Active participation in the preparation and performance of departmental productions as actors, assistants to the director, dancers, and choreographers. Individual design/technical assignments. May be repeated for a total of 8 units. *Prerequisite: Approval of director of production.* (2 units)

38. Movement for Athletes

Focuses on flexibility, agility, body awareness, and strength building. Class exercises will draw from Pilates' core strengthening mat work, introductory ballet barre, and center work to enhance balance and coordination. (2 units)

39. Hip-Hop

Introductory course to street dance style performed to hip-hop music. Introduces the body to strong isolated movement, coordination, and dance combinations that will include floorwork. (2 units)

40. Jazz Dance I

Introductory course in jazz dance with no previous training required. Introduces body isolation, rhythmic awareness, movement coordination, and jazz styles through performance of dance combinations in the styles of theatre jazz, hip-hop, and lyrical dance. (2 units)

41. Jazz Dance II

Continuation of jazz fundamentals introduced in DANC 40 with emphasis on learning and retaining longer combinations through more challenging dance technique offered in styles of theatre jazz, hip-hop, and lyrical dance. (2 units)

42. Jazz Dance III

Continued study of jazz dance at an intermediate level with emphasis on technique, flexibility, balance, control, muscle tone, and retaining long combinations in a variety of jazz styles. This course will prepare the dancer for continuation into the advanced level of jazz. Students choreograph final projects. (4 units)

43. Ballet I

Introductory course in ballet with no previous experience necessary. Develops individual strength, flexibility, and coordination through classical ballet technique. Includes barre and floor combinations. (2 units)

44. Ballet II

Continuation of ballet fundamentals introduced in DANC 43 with emphasis on discipline, coordination, and developing practical performing skills in classical ballet technique. Includes barre and floor combinations. (2 units)

45. Ballet III

Continued study of ballet at intermediate level, encouraging technical and performing proficiency. Focus on correct alignment and developing artistic expression. Includes barre exercises and intermediate-level floor combinations. (4 units)

46. Modern Dance I

Introductory course in modern dance with no previous training required. Introduces the expressive potential of dance through modern dance technique. Emphasis on flexibility, strength, and alignment practiced through standing and floor exercises. Movement improvisation explores qualities of motion. (2 units)

47. Modern Dance II

Continuation of modern dance fundamentals introduced in DANC 46 with emphasis on technique, flexibility, coordination, and creativity. (2 units)

48. Modern Dance III

Continued study of modern dance at an intermediate level. Emphasis on release techniques, rhythmic precision, and spatial principles through extended combinations and movement improvisation. (4 units)

49. Dance Composition

Traditional approaches to compositional problems of form and design, time and rhythm, and energy flow and force in dance as an art form. (4 units)

50. Tap I

Introductory course in tap dance with no previous training required. Develops better coordination, rhythm, and timing. Strengthens the feet and legs. Basic tap terminology and steps. (2 units)

51. Tap II

Continuation of tap fundamentals introduced in DANC 50. Increasing rhythm and coordination through intermediate level steps and technique. Learn tap steps and apply them to the art of performance. (2 units)

52. Afro-Haitian Dance

Introductory course in Afro-Haitian dance with no previous training required. Basic technique class that introduces the subtleties of the dance, proper body placement, and the rhythmic structure between the dance and the music. Offered in alternate years. (2 units)

54. Mexican Folklorico Dance

Introductory course in Mexican folklorico dance with no previous training required. Course introduces steps and moves from various regional forms of dance from Mexico including Azteca, Quebradita, Danzon, and Salsa Mexican style; plus a very structured form of exercise for footwork called "tecnica" drills to enable the dancer to pick up more intricate and challenging material. Offered in alternate years. (2 units)

55. Musical Theatre Dance Styles

Exploration of musical theatre dance styles. Based on theatre jazz technique, consisting of warm-ups, across the floor progressions and combinations from musical theatre. This course will introduce the musical theatre performer to auditions through mock audition technique. Offered in alternate years. (4 units)

56. Pilates Private Instruction

Pilates is the latest technology for conditioning the human body. Pilates is excellent for building a deep internal strength and an integrated, aligned body for anyone with an active lifestyle, as well as for injury prevention and recovery. One-on-one Pilates instruction using the Reformer and another apparatus. *Prerequisite: Permission of instructor.* (1 unit)

57. Dance to Go

The development and production of creative dances designed for outreach. Focus on improvisation and sharing the art of dance through interactive performance. Touring production. (2–4 units)

58. Pilates Mat Class

Pilates mat classes, based on the pioneering work of Joseph Pilates, are designed to condition the body. Mat classes focus on alignment and breathing. Strengthens the core of the body while freeing up the joints to aid in flexibility, improving posture, and all around quality of life. *Prerequisite: Permission of instructor.* (2 units)

59. Teaching the Performing Arts

Immersion course in artistic process, practices, principles, pedagogies, and public policy. This course covers the fundamentals of teaching dance, theatre, music, and art to children in public and private settings with a focus on marginalized communities, and is important preparation for any student considering teaching at any point in his/her career. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (4 units)

61. Charisma

Charisma is a student-directed, faculty mentored exploration of spirituality, as revealed through the performing arts. Students begin this process in retreat, dedicating time throughout fall quarter for reflection and discovery through their collective creative work. The Charisma experience culminates in an early winter quarter performance. *Prerequisite: Auditions are held the preceding spring quarter.* (2 units)

62. African-American Dance History

Exploration of African-American dance's contribution to U.S. culture from slavery through the present. How minstrel stereotypes, jazz dance sources, black concert dance, and hip-hop reflect racial and social realties in America. Offered in alternate years. (4 units)

66. Women in Dance History

Introduction to significant European and American women dance artists from the 1830s to the present with a focus on their achievements as dancers, choreographers, critics, and scholars within their social context. Views dance through feminist theoretical perspectives to address issues of power, agency, and personal expression in ballet, modern, jazz, and ethnic dance forms. Offered in alternate years. *Also listed as WGST 62.* (4 units)

67. Dance History

Survey of Western concert dance that explores the Italian and French origins of ballet through the 20th-century emergence of modern and jazz dance, and culminates with the new directions of postmodern dance late in that century. Investigates the key contributing artists, significant developments, and overall growth of dance as a performing art integrated into the changing society to which it belongs. (4 units)

68. Cultures on the Move: Theatre and Dance as Dialogue of Transition

Explores the historical circumstances of migration to the United States by populations and cultures from West Africa and China as well as the Cherokee nation within the United States. Focuses on how performance traditions, especially dance, functioned to process the inevitable conflicts, struggles, and ultimate transformations into blended cultures. Considers the legacy and current vitality of these cultural migrations in the present. (4 units)

69. Walk Across California

This course will create learning experiences that draw upon interactions with the diverse California human and natural environments by walking across California from San Francisco to Yosemite National Park immediately following spring quarter. Both written and aesthetic reflections through various art forms will enhance students' understanding of human and environmental sustainability and social injustices in contemporary society. The class will nurture a "sense of wonder" and focus on sustainability, environmental justice, and social activism addressed through scheduled talks with community members including farmers, activists, teachers, park rangers, artists, shop owners, and Native Americans. (4 units)

UPPER-DIVISION COURSES: DANCE

129. Rehearsal and Performance

For course description see DANC 29. (2 units)

138. Movement for Athletes

For course description see DANC 38. (2 units)

140. Advanced Ballet I

Advanced level study of classical ballet with focus on American and European styles. Includes ballet barre exercises, center adagio, and allegro combinations at intermediate/advanced level. (5 units)

141. Advanced Ballet II

Continuation of DANC 140. (5 units)

142. Advanced Jazz Dance I

Builds from an assumed intermediate level of jazz dance technique. Emphasis on personal style and performance techniques in advanced jazz dance combinations. This course prepares the dancer for expectations in the professional industry. (5 units)

143. Choreography

Emphasis on the creative process, dynamics, phrasing, and thematic development through choreographing and performing an original group dance. Exploration of aesthetic and stylistic approaches to choreography. *Prerequisite: DANC 49 or equivalent.* (5 units)

145. Advanced Jazz Dance II

Continuation of DANC 142. Emphasis on fluency of the various styles of dance on a pre-professional level. Designed for the more serious dancer. Will have the opportunity to meet and network with industry professionals. (5 units)

146. Advanced Modern Dance I

Intermediate/advanced level study of modern dance technique. Emphasis on release principles, breath control, phrasing, clarity of line, and movement qualities. Improvisation and extended combinations develop performance commitment. (5 units)

147. Advanced Modern Dance II

Continuation of DANC 146. Emphasis, through improvisation and combinations, on the temporal component of dance: rhythm, tempo, time signatures, and polyrhythms. (5 units)

148. Advanced Modern Dance III

Continuation of DANC 146 and DANC 147. Focus on modern dance styles: lyrical, classical, eclectic, and pedestrian. Emphasis on developing a clear, personal performance style and movement analysis skills. (5 units)

149. Dance Outreach

A performance of original creative student work both on and off campus as a representative of the department. Certain outreach venues will be coordinated with the Arrupe Center. *Prerequisite: Permission of instructor.* (2–5 units)

155. Musical Theatre Dance Styles

For course description see DANC 55. (5 units)

156. Pilates Private Instruction

For course description see DANC 56. (1 unit)

157. Dance to Go

For course description see DANC 57. (2–5 units)

158. Pilates Mat Class

For course description see DANC 58. (2 units)

159. Teaching the Performing Arts

For course description see DANC 59. (5 units)

161. Charisma

For course description see DANC 61. (2 units)

162. African-American Dance History

For course description see DANC 62. (5 units)

166. Women in Dance History

For course description see DANC 66. (5 units)

169. Walk Across California

For course description see DANC 69. (5 units)

189. Social Justice and the Arts

Explores the dynamics of theatre and dance in the context of social justice in local, national, and international settings. The course will host visiting guest artists and include off-campus experiences. This is a research and discovery opportunity. May be repeated once for credit with permission of instructor. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (5 units)

192. Senior Project: Performance

Showcases performance in dance. May be fulfilled through performance in a department production with the required journal, reflection and evaluation of process and project in light of department learning goals. May also be satisfied through a collaboratively produced performance piece following the same guidelines. *Prerequisite: Must be supervised by a faculty advisor.* (5 units)

193. Senior Project: Dance

A recital for theatre majors, with dance emphasis, showcasing their performance abilities. *Prerequisite: Approval of dance faculty.* (5 units)

194. Peer Educator in Dance

Students will assist instructors in dance classes. *Prerequisite: Mandatory training workshop.* (1–2 units)

198. Dance Practicum

Reserved for projects/internships with recognized institutions outside of the University. *Prerequisite: Written proposal must be approved by the instructor and the department chair one week prior to registration.* (1–5 units)

199. Independent Study

Various areas of directed study: creative projects in directing, choreography, technical production, design, playwriting, administration, teaching assistants, focused participation in a special project, or directed reading and/or research. *Prerequisite: Written proposal must be approved by the instructor and department chair one week prior to registration.* (2–5 units)

WOMEN'S AND GENDER STUDIES PROGRAM

Professors: Laura Ellingson, Eileen Razzari Elrod
Associate Professor: Linda Garber (*Director*)
Assistant Professor: Sharmila Lodhia

The Women's and Gender Studies Program brings together scholars and scholarship on women and gender, areas that have come to occupy an increasingly important place in a number of disciplines in the last quarter century. Areas of inquiry include the participation of women in social and cultural production; the construction of gender and its role as a constitutive element of social, political, economic, and legal structures; feminist theory; and the development of ideas about femininities, masculinities, and sexualities. Gender is examined as it intersects with class, sexuality, ethnicity, disability, age, and nationality. The program organizes several public events throughout the year focused on gender issues, including lectures, symposia, films, and informal gatherings. Many of these programs are produced in collaboration with other academic departments, student groups, and the University's centers of distinction.

The Women's and Gender Studies Program provides an integrated, interdisciplinary approach to understanding the social and cultural constructions of gender that shape the experiences of women and men in society. The curriculum offers a solid foundation in women's and gender studies, facilitating graduate study and careers involving gender justice concerns and preparing students for leadership roles in diverse workplaces and communities. Women's and Gender Studies offers a minor and a companion major; a student must declare a primary major in another discipline (e.g., history, biology, or English) and a second companion major in women's and gender studies.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and primary major requirements, students with a companion major in women's and gender studies must complete the following requirements:

Ten courses, at least five of which must be upper-division:

- One of the following Principles of WGST course or sequence:
  - WGST 1 and 2
  - WGST 11A and 12A
  - WGST 50
  - WGST 51
  - WGST 112/ETHN 154
  - WGST 114/ETHN 157
  - WGST 115/SOCI 153
  - WGST 169/HIST 115S
  - WGST 172/HIST 135

- One of the following:
  - WGST 101 (Feminist Theory) (advised in the junior year)
  - WGST 163/ENGL 125 (Feminist Literary Theory and Criticism) (advised in the junior year)
- Both of the following are required:
  - WGST 102/COMM 111G (Feminist Methods) (advised in the junior year)
  - WGST 190 (Senior Seminar) (senior year)
- Six additional courses from among the offerings in WGST and cross-listed courses (students cannot count their Principles course for this requirement).
- ***Emphasis requirement:*** In consultation with the director, students will develop an area of concentration within the requirements linking at least three of the six courses into an area of interest.

  Note: Courses taken to satisfy the University Core Curriculum or primary major requirements may also count toward the major.
- ***Co-curricular requirement:*** Attend two events per year sponsored or co-sponsored by the Women's and Gender Studies Program and prepare a one- to two-page reflective analysis of each event, due in the program office within a week of the event.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in women's and gender studies:

Six courses, at least three of which must be upper division:

- One of the following Principles of WGST course or sequence:
  - WGST 1 and 2
  - WGST 11A and 12A
  - WGST 50
  - WGST 51
  - WGST 112/ETHN 154
  - WGST 114/ETHN 157
  - WGST 115/SOCI 153
  - WGST 169/HIST 115S
  - WGST 172/HIST 135
- One of the following:
  - WGST 101 (Feminist Theory) (advised in the junior year)
  - WGST 163/ENGL 125 (Feminist Literary Theory and Criticism)
  - WGST 102/COMM 111G (Feminist Methods) (advised in the junior year)
- The following course is required:
  - WGST 190 (Senior seminar) (senior year)

- Three additional courses from among offerings in WGST and cross-listed courses (students cannot count their Principles course for this requirement).

  Note: Courses taken to satisfy the University Core Curriculum or primary major requirements may also count toward the minor.

- ***Co-curricular requirement:*** Attend two events per year sponsored or co-sponsored by the Women's and Gender Studies Program and prepare a one- to two-page reflective analysis of each event, due in the program office within a week of the event.

LOWER-DIVISION COURSES

1A. and 2A. Critical Thinking & Writing I and II

A two-course sequence, focusing on a major theme, featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. The second course will feature more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. *Successful completion of CTW I (WGST 1A) is a prerequisite for CTW 11 (WGST 2A).* (4 units each quarter)

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address ways women's lives in diverse global regions are shaped by the political, economic, and social structures that surround them; perspectives on representation, citizenship and rights, bodies and sexuality; and other topics. *Successful completion of C&I I (WGST 11A) is a prerequisite for C&I II (WGST 12A).* (4 units each quarter)

50. Introduction to Women's and Gender Studies

Examines gender in the lives of women and men, using an interdisciplinary approach to analyze the effects of societal institutions and processes. Particular attention is paid to the development and dynamics of gender inequality; intersections of gender, race, class, and sexuality; and the social construction of gender. (4 units)

51. Introduction to LGBTQ Studies

Covers a variety of topics focusing on the areas of history, media, politics, literature and the arts, emphasizing the diverse nature of lesbian, gay, bisexual, transgender, queer (LGBTQ) communities and issues. Course materials address sexual identity as it intersects with gender, class, race, ethnicity, disability, and nation. (4 units)

76. Violence Against Women

Interdisciplinary study of U.S.-based women in the context of the institutionalization of violence and its impact across civic life. Areas of violence research such as campus, domestic, sexual assault, harassment, and stalking will be addressed in the context of the intersections of race, class, gender, and sexuality. (4 units)

UPPER-DIVISION COURSES: WOMEN'S AND GENDER STUDIES

101. Feminist Theory

Examines historical and contemporary feminist theories with the goal of understanding the multiplicity of feminist frameworks for thinking about sex, gender, and oppression. *Prerequisite: Sophomore standing or permission by WGST department chair.* (5 units)

102. Feminist Methods

Also listed as COMM 111G. For course description see COMM 111G. (5 units)

103. Topics in Women's and Gender Studies

Explores a variety of current issues in Women's and Gender Studies. (5 units)

104. Beauty, Culture, and Society in a Global Age

Explores dominant standards of beauty across diverse cultures and societies. Beginning with an analysis of the historical origins of the display of raced and gender bodies, this course will identify linkages between beauty and ideas about racial superiority, eugenics, hygiene, and the logics and instrumentalities of colonialism. After situating the analysis of bodies and beauty within a historical context, subsequent units will examine contemporary issues such as beauty contests, colorism, the hair trade, plastic surgery, and the beauty industrial complex. Readings and assignments will highlight the lived impact of hegemonic beauty ideals on women in diverse regional contexts. (5 units)

118. Women and Law

Examines the legal status and rights of women in the United States through an intersectional lens. Principles such as equality, essentialism, privacy, and equal protection will be examined as will contemporary law and policy issues such as employment discrimination, sexual harassment, domestic violence, rape, reproductive justice, and family law. *Also listed as POLI 171.* (5 units)

190. Senior Seminar

Seminar focused on critical questions within the interdisciplinary field of women's and gender studies. Course will consider connections between the field and feminist politics/activism in the larger community. *Restricted to seniors with a major or minor in women's and gender studies.* (5 units)

198. Internship

Directed internship in local organizations addressing gender and/or sexuality issues. *Open to qualified WGST majors and minors with permission of instructor.* (1–5 units)

199. Directed Reading/Research

Independent projects undertaken by upper-division students with a faculty sponsor. To receive credit, the student must submit a formal written proposal and have it approved by the sponsoring faculty member and the program director. *Written proposal must be submitted before the end of the previous quarter and must meet University requirements for independent study credit.* (1–5 units)

ANTHROPOLOGY COURSES

120. Middle East: Gender and Sexuality

Also listed as ANTH 187. For course description see ANTH 187.

155. Family, Kin, and Culture

Also listed as ANTH 157. For course description see ANTH 157.

187. Women, Gender, and Sexuality

Also listed as ANTH 170. For course description see ANTH 170.

ART AND ART HISTORY COURSES

156. Women's Work: American Women in the Visual Arts

Also listed as ARTH 143. For course description see ARTH 143.

CLASSICS COURSES

133. Love and Relationships in Classical Antiquity

Also listed as CLAS 141 and PHIL 131D. For course description see CLAS 141.

157. Gender in Antiquity

Also listed as CLAS 185. For course description see CLAS 185.

COMMUNICATION COURSES

116. Race, Gender, and Public Health in the News

Also listed as COMM 164A. For course description see COMM 164A.

117. Race, Gender, and Politics in the News

Also listed as COMM 168A. For course description see COMM 168A.

140. Gender, Health, and Sexuality

Also listed as COMM 106A. For course description see COMM 106A.

160. Vocation and Gender: Seeking Meaning in Work and Life

Also listed as COMM 101A. For course description see COMM 101A.

161. Communication and Gender

Also listed as COMM 108A. For course description see COMM 108A.

DANCE COURSES

62. Women in Dance History

Also listed as DANC 66. For course description see DANC 66.

162. Women in Dance History

Also listed as DANC 166. For course description see DANC 166.

ECONOMICS COURSES

121. Gender Issues in the Developing World

Also listed as ECON 135. For course description see ECON 135.

ENGLISH COURSES

14. African-American Literature

Also listed as ENGL 35. For course description see ENGL 35.

15. Literature by Women Writers of Color

Also listed as ENGL 69. For course description see ENGL 69.

16. Multicultural Literature of the United States

Also listed as ENGL 39 and ETHN 70. For course description see ENGL 39.

34. U.S. Gay and Lesbian Literature

Also listed as ENGL 67. For course description see ENGL 67.

56. Literature and Women

Also listed as ENGL 68. For course description see ENGL 68.

110. Studies in Native American Literature Women Writers

Also listed as ENGL 158G. See CourseAvail for description when listed as ENGL 158G.

122. Studies in Global Gay and Lesbian Cultures

Also listed as ENGL 153. For course description see ENGL 153.

129. Studies in Caribbean Literature

Also listed as ENGL 164. For course description see ENGL 164.

134. Studies in Film, Gender, and Sexuality

Also listed as ENGL 122. For course description see ENGL 122.

136. Studies in Gay and Lesbian Cultural Studies

Also listed as ENGL 156. For course description see ENGL 156.

154. Literature and Religion: Women Poets, Spirituality, and Justice

Also listed as ENGL 189G. See CourseAvail for course description when listed as ENGL 189G.

163. Feminist Literary Theory and Criticism

Also listed as ENGL 125. For course description see ENGL 125.

164. Studies in 19th-Century American Literature

Also listed as ENGL 132G. See CourseAvail for description when listed as ENGL 132G.

165. Studies in American Fiction

Also listed as ENGL 135G. See CourseAvail for description when listed as ENGL 135G.

166. Studies in Women, Literature, and Theory

Also listed as ENGL 152. For course description see ENGL 152.

167. Studies in Women and Literature

Also listed as ENGL 168. For course description see ENGL 168.

186. Studies in Contemporary American Literature

Also listed as ENGL 134G. For course description see ENGL 134G.

ETHNIC STUDIES COURSES

111. Asian-American Women

Also listed as ETHN 141. For course description see ETHN 141.

112. Women of Color in the United States

Also listed as ETHN 154. For course description see ETHN 154.

114. Race, Gender, Class, and the College Experience

Also listed as ETHN 157. For course description see ETHN 157.

HISTORY COURSES

57. United States Women's History

Also listed as HIST 84. For course description see HIST 84.

124. Sex and Gender in the Age of High Imperialism

Also listed as HIST 116S. For course description see HIST 116S.

125. Women in Political Revolutions

Also listed as HIST 143S. For course description see HIST 143S.

126. Gender and Sexuality in East Asia

Also listed as HIST 150. For course description see HIST 150.

137. History of Sexuality

Also listed as HIST 133. For course description see HIST 133.

138. Gays and Lesbians in United States History

Also listed as HIST 177. For course description see HIST 177.

169. Gender, Race, and Citizenship in the Atlantic World

Also listed as HIST 115S. For course description see HIST 115.

172. Gender and National Identity in 20th-Century Eastern and Western Europe

Also listed as HIST 136. For course description see HIST 136.

173. United States Women Since 1900

Also listed as HIST 181. For course description see HIST 181.

174. Sex and Family in American History

Also listed as HIST 182. For course description see HIST 182.

MODERN LANGUAGES AND LITERATURE COURSES

123. Black African/Caribbean Women Writers

Also listed as FREN 113. For course description see FREN 113.

175. French and Francophone French Novels and Films: Culture, Gender, and Social Classes

Also listed as FREN 174. For course description see FREN 174.

176. Women in French Literature: Authors and Characters

Also listed as FREN 182. For course description see FREN 182.

177. 20th- and 21st-Century French Women Writers

Also listed as FREN 183. For course description see FREN 183.

178. 20th-Century French Women Writers in Translation

Also listed as FREN 184. For course description see FREN 184.

179. Women in German Literature: Authors and Characters

Also listed as GERM 182. For course description see GERM 182.

185. 20th-Century Italian Women Writers

Also listed as ITAL 182. For course description see ITAL 182.

PHILOSOPHY COURSES

58. Ethics and Gender

Also listed as PHIL 4A. For course description see PHIL 4A.

133. Love and Relationships in Classical Antiquity

Also listed as CLAS 141 and PHIL 131D. For course description see CLAS 141.

184. Feminism and Ethics

Also listed as PHIL 115. For course description see PHIL 115.

POLITICAL SCIENCE COURSES

118. Women and Law (this topic only)

Also listed as POLI 169D. For course description see WGST 118.

127. Special Topics in International Relations

Also listed as POLI 127. For course description see POLI 127.

180. Women and Politics

Also listed as POLI 154. For course description see POLI 154.

PUBLIC HEALTH COURSES

33. Human Sexuality

Also listed as PHSC 28. For course description see PHSC 28.

RELIGIOUS STUDIES COURSES

46. Gender in Early Christianity

Also listed as SCTR 26. For course description see SCTR 26.

47. Biblical Women and Power

Also listed as SCTR 39. For course description see SCTR 39.

48. Women in Christian Tradition

Also listed as TESP 79. For course description see TESP 79.

145. Gender and Judaism

Also listed as RSOC 168. For course description see RSOC 168.

146. Religion, Gender, and Globalization

Also listed as RSOC 170. For course description see RSOC 170.

147. Postcolonial Perspectives on the New Testament

Also listed as SCTR 158. For course description see SCTR 158.

148. Gender and Sex in Biblical Interpretation

Also listed as SCTR 165. For course description see SCTR 165.

149. Feminist Theologies

Also listed as TESP 131. For course description see TESP 131.

151. Women's Theologies from the Margins

Also listed as TESP 175. For course description see TESP 175.

152. Mexican Popular Catholicism and Gender

Also listed as ETHN 129 and RSOC 139. For course description see ETHN 129 or RSOC 139.

153. The Bible and Empire

Also listed as SCTR 157. For course description see SCTR 157.

SOCIOLOGY COURSES

115. Race, Class, and Gender in the United States

Also listed as SOCI 153. For course description see SOCI 153.

128. Women and Social Change in Latin America

Also listed as SOCI 135. For course description see SOCI 135.

181. Women and Men in the Workplace

Also listed as SOCI 152. For course description see SOCI 152.

182. Sociology of Family

Also listed as SOCI 157. For course description see SOCI 157.

THEATRE COURSES

139. Gender and Performance

Also listed as THTR 167. For course description see THTR 167.

183. Fashion, Politics, and Issues of Gender

Also listed as THTR 151. For course description see THTR 151

INTERDISCIPLINARY MINORS AND OTHER PROGRAMS OF STUDY

ARABIC, ISLAMIC, AND MIDDLE EASTERN STUDIES

Director: David Pinault

The interdisciplinary minor in Arabic, Islamic, and Middle Eastern Studies (AIMES) provides an introduction to the various cultures, peoples, and religions—Muslim, Jewish, and Christian—of the Middle East, as well as the diverse forms of Islamic practice in Muslim societies throughout the world. This program also encourages the study of diaspora and immigrant communities where Islamic and Middle Eastern populations constitute a religious or ethnic minority.

Students enrolled in this minor have the opportunity to sample a variety of methodologies and academic disciplines—including anthropology, art history, literary criticism, history, political science, and religious studies—that address the Middle East in particular and the Islamic world at large.

The AIMES interdisciplinary minor is ideal for students who want to develop the intellectual resources for thoughtful and informed engagement with current issues in the Middle East and the Islamic world. AIMES is also well suited for students considering work with overseas aid organizations, government and military service, international business, or graduate programs in international studies.

REQUIREMENTS FOR THE MINOR

Students must complete a total of nine courses—six culture courses and three Arabic language courses—for a minor in AIMES. Details concerning these requirements are as follows:

Culture Courses

Students must take a total of six culture courses relating to AIMES (two lower-level and four upper-level) from at least three different departments. No more than two courses may be counted for AIMES credit from the department in which a student majors. A maximum of three courses for AIMES credit may be taken from any one department.

Arabic Language

Three quarters of Arabic are required. Students with prior knowledge of a relevant language may take a test that certifies that they have fulfilled this requirement.

Senior Project

In lieu of one of the six required courses in Middle Eastern and Islamic cultures, students may elect to do an independent study/reading course on a project in consultation with a member of the AIMES Faculty Advisory Council. This project may entail fieldwork with local Islamic and diaspora Middle Eastern communities in the Bay area.

Students enrolled in the AIMES minor are strongly encouraged to participate in SCU-approved study abroad programs that pertain to Arabic, Islamic, and Middle Eastern studies. Before enrolling in any such program, students should check with the director and faculty members of the AIMES minor as well as the International Programs Office.

ANTHROPOLOGY COURSES

ANTH 187. Middle East: Gender and Sexuality
ANTH 156. Anthropology of Muslim Peoples and Practices
ANTH 188. Middle East: Culture and Change

ART HISTORY COURSES

ARTH 24. From Damascus to Dubai: A Survey of the Visual Culture of the Middle East
ARTH 121. Venice and the Other in the Renaissance
ARTH 164. Islamic Art, 600–1350 CE

ENGLISH COURSES

ENGL 128. Studies in the Literature of the Middle Eastern and Islamic World

HISTORY COURSES

HIST 97. West Asia and the Middle East
HIST 142. Modern West Asia and North Africa
HIST 144S. Islam in Africa
HIST 145. Islam in the Modern World

MODERN LANGUAGES AND LITERATURES

ARAB 1. Elementary Arabic I
ARAB 2. Elementary Arabic II
ARAB 3. Elementary Arabic III
ARAB 21. Intermediate Arabic I
ARAB 22. Intermediate Arabic II
ARAB 23. Intermediate Arabic III
ARAB 50. Intermediate Arabic Conversation
ARAB 137. Arabic Culture and Identity
ARAB 199. Directed Reading
FREN 114. Literatures and Cultures of the Maghreb
FREN 173. Immigration, Race, and Identity in Contemporary France

POLITICAL SCIENCE COURSES

POLI 139. Religion and Politics in the Developing World
POLI 142. Politics in the Middle East

RELIGIOUS STUDIES COURSES

RSOC 7. South Asian Religious Traditions
RSOC 19. Egyptian Religious Traditions
RSOC 81. Islam
RSOC 154. The Islamic Jesus
RSOC 182. Shia Islam in the Contemporary World
RSOC 190. Islam: Reformation and Modernity
SCTR 19. Religions of the Book

ASIAN STUDIES

Director: Gregory P. Corning

The Asian studies minor is designed to provide an introduction to the cultures and languages of Asia. Courses in several disciplines enable students to sample different dimensions of Asian cultures as well as focus on a specific area of interest.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Asian studies:

Culture Courses

- Two lower-division courses and four upper-division courses (maximum of two upper-division courses from a student's major and three in any one department) selected from the list of approved courses
- Culture courses include approved offerings in disciplines including art history, history, political science, and religious studies

Language Courses

- Completion of the third course of the first-year, college-level sequence in an Asian language (Japanese and Chinese are offered) or demonstration of an equivalent level of proficiency by passing a language proficiency examination supervised by the Department of Modern Languages and Literatures
- Non-native speakers of English may satisfy this requirement by presenting professionally recognized documentation of proficiency in an Asian language

Field Project

- A field project approved by the program director

Students are encouraged to ask instructors in Asian studies courses about Arrupe placements or other ways they might complete a field project as part of a course. The program director can also help students design projects that suit their interests and means.

The Asian Studies Program strongly urges its students to spend a summer, quarter, or year in one of the many University-approved study abroad programs in Asia. Many of these programs offer internship or volunteer opportunities that satisfy the field project requirement.

UPPER-DIVISION COURSES: ASIAN STUDIES

ASIA 199. Directed Reading/ Directed Research

Note: In addition to the courses listed below, many departments offer occasional special topics, directed reading, and seminar courses on Asian studies topics. Students should consult with the program director to determine the applicability of these courses, as well as study abroad courses, to the minor.

ART HISTORY COURSES

ARTH 11A. Cultures & Ideas I (East meets West in Visual Culture II)
ARTH 12A. Cultures & Ideas II (East meets West in Visual Culture II)
ARTH 26. Buddhas, Buildings, and Beauties: Theme and Style in Asian Art
ARTH 160. East-West Encounters in the Visual Arts
ARTH 161. Photography in Japan
ARTH 162. Visual Culture of Modern Japan
ARTH 163. The Japanese Print

COMMUNICATION COURSES

COMM 189. Communication, Citizenship, and Globalization in Asia

HISTORY COURSES

HIST 11A. Cultures & Ideas I (Across the Pacific I)
HIST 12A. Cultures & Ideas II (Across the Pacific II)
HIST 55. Introduction to Southeast Asia
HIST 92. Modern East Asia
HIST 93. Introduction to the History of South Asia and the Indian Ocean
HIST 146A. Medieval and Early Modern Japan
HIST 146B. Modern Japan in the World
HIST 147A. Premodern China in the World to AD 1600
HIST 147B. Modern China in the World, 17th Century to Present Day
HIST 148. China and the Chinese Diaspora
HIST 150. Gender and Sexuality in East Asia
HIST 151. Imperialism in East Asia
HIST 152. History of Christianity in China
HIST 154. Modern India
HIST 159. Special Topics in Asian History
HIST 195S. Seminar in Asian History
HIST 197. Senior Project
HIST 199. Directed Reading/Directed Research

MODERN LANGUAGES AND LITERATURES COURSES

CHIN 1–3. Elementary Chinese I, II, III
CHIN 21–23. Intermediate Chinese I, II, III
CHIN 100–102. Advanced Chinese I, II, III
CHIN 127. Chinese History and Culture
CHIN 137. Modern Chinese Culture
CHIN 194. Peer Educator in Chinese
CHIN 197. Special Topics
CHIN 198. Directed Study
CHIN 199. Directed Reading
JAPN 1–3. Elementary Japanese I, II, III
JAPN 21–23. Intermediate Japanese I, II, III
JAPN 100–102. Advanced Japanese I, II, III
JAPN 113–115. Readings in Japanese I, II, III
JAPN 137. Japanese Culture
JAPN 194. Peer Educator In Japanese

JAPN 198. Directed Study
JAPN 199. Directed Reading

POLITICAL SCIENCE COURSES

POLI 3. Introduction to World Politics
POLI 122. East Asian International Relations
POLI 139. Religion and Politics in the Developing World
POLI 148. Politics in China
POLI 196. Seminar in International Relations: East Asia and the World Economy
POLI 199. Directed Reading

RELIGIOUS STUDIES COURSES

RSOC 7. South Asian Religious Traditions
RSOC 10. Asian Religious Traditions
RSOC 85. Hinduism
RSOC 86. Buddhism
RSOC 87. Buddhism and Film
RSOC 88. Chinese Religions
RSOC 106. Zen in Theory and Practice
RSOC 115. Tibetan Buddhism: A Cultural History
RSOC 130. East Asian Buddhism
RSOC 199. Directed Reading and Research

BIOTECHNOLOGY

Director: David Hess

Biotechnology is revolutionizing the practice of medicine and agriculture and is having an impact on fields as diverse as human reproduction, forensics, manufacturing, and pollution control. The minor in biotechnology is designed for students interested in gaining insight into the scientific background of biotechnology, exploring its potential for the future, and obtaining practical experience in laboratory techniques used in biotechnology research and its applications. This course of study is most useful for students contemplating careers in the biotechnology industry and students who plan to pursue advanced degrees in related areas such as molecular biology, cell biology, or biochemistry. The minor will be most easily completed by students majoring in biology, public health science, or chemistry and biochemistry; other majors should consult with their advisors and begin the course of study as early as possible in order to complete the requirements in a timely manner. Twelve courses are required for the minor, at least seven of which must have laboratory components.

In addition to coursework, students are required to complete a research internship at a biotechnology company, a research institute, or an academic laboratory focusing on an area relevant to biotechnology (i.e., cell biology, molecular biology, biochemistry, genetics, microbiology, or genomics). Internships must be approved in advance by the director. The minimum length of the internship is 10 weeks of full-time work or 400 hours total time if done on a part-time basis. Students must prepare a written report on the project upon completion to be evaluated by the director.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in biotechnology:

Scientific Foundations of Biotechnology

- BIOL 21, 24, 25, 175
- CHEM 11, 12, 31, 32

Ethical Issues

- BIOL 171

Advanced Laboratory Skills

- BIOL 176, 177, or CHEM 143

Contemporary Topics in Biotechnology and Related Fields

- BIOL 189

One Elective Course

- BIOL 110, 113, 174, or CHEM 141

CATHOLIC STUDIES

Director: Michael C. McCarthy, S.J.

The minor in Catholic studies, open to students from all departments, is an interdisciplinary program for the study of the intellectual tradition of the Catholic faith. The minor is designed for intensive study of Catholicism as a faith embedded in many cultures and for the critical retrieval of the Catholic intellectual tradition through dialogue with contemporary thought under the rubrics of a variety of academic disciplines. Catholic studies minors are assigned a faculty mentor who guides them through the program. In conjunction with the Ignatian Center for Jesuit Education, the Catholic Studies program sponsors intellectual, cultural, social, and religious opportunities for both students and faculty.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Catholic studies:

Foundational Courses

- Two courses in Catholic theology from offerings in the Department of Religious Studies
- One approved course from the Cultures & Ideas series (or equivalent)

Faith and Culture Courses

- One specialized course in Catholic history
- One course in Catholic literature
- One specialized course in philosophy or an upper-division course in theology
- Two approved elective courses in the study of Catholic societies or cultures

The Colloquium

During sophomore, junior, and senior years, students may participate in a 2-unit interdisciplinary colloquium. The colloquium meets one quarter each year for discussion of a range of relevant topics pertinent to the Catholic intellectual tradition. The colloquium is open to all Santa Clara students, but first priority is given to Catholic studies minors.

INTERNATIONAL STUDIES

Director: Susan M. Popko

Students who pursue the international studies minor may examine global themes, trends in globalization or intercultural communication, or use the minor to add a global dimension or context to their major. The minor offers students the opportunity to pursue one of two emphases: (1) the Global Thematic emphasis in which students concentrate their coursework on themes related to international or cross-cultural studies, or (2) the Area Studies emphasis in which students concentrate their coursework on selected geographic areas (Africa, Europe, or Latin America).

The Global Thematic emphasis offers students the opportunity to examine broad international issues that transcend a single nation or geographic area. In the Global Thematic emphasis, the student has the opportunity to focus on a topic such as poverty and development, global health, international law, international human rights, peace and conflict resolution, cross-cultural communication, international social justice in the arts, technology and globalization, the global dimensions of natural and physical sciences, diplomacy, gender and society, etc. Such subjects require systematic approaches distinct from the examination of single-nation or area studies. Some of the most compelling Global Thematic emphasis topics in recent years have included international law, global issues of sustainability, international women's rights, and community arts in the global context.

The Area Studies emphasis may include a focus on Africa, Europe, or Latin America. The Area Studies emphasis offers an interdisciplinary introduction to the cultures, languages, politics, and global challenges facing the region. The Area Studies emphasis with a focus on Africa also includes study of the African diaspora and related issues of slavery, colonialism, and globalization.

REQUIREMENTS FOR THE MINOR

For the minor in international studies, students must complete the equivalent of four foundation courses, a capstone course, plus an emphasis courses in either global thematic or area studies as follows:

Foundation Courses

- ***Foreign Language:*** Two upper-division courses in a foreign language related to the chosen Global Thematic or Area Studies emphasis or the equivalent, as demonstrated through successful examination through the Department of Modern Languages and Literatures
- ***Social Science:*** Two relevant courses in anthropology, communication, political science, or sociology; one of which must be ANTH 3, COMM 107A, POLI 2, POLI 25, SOCI 133, or SOCI 134

Capstone Course

A minimum of 20 contact hours in a class, academic internship, or community-based learning experience abroad. The course must include academic oversight and assessment. This requirement may be fulfilled by a minimum of one quarter study abroad related to the chosen Area Studies or Global Thematic emphasis. Students should communicate with the associate provost for International Programs to request approval for alternative capstone courses.

Global Thematic Emphasis Courses

In addition to the foundation courses, students pursuing the Global Thematic emphasis must complete three courses, at least two of which must be upper division and no more than one of which may be in the student's academic major. Students develop their own theme and present a detailed proposal to the International Studies Committee for approval usually no later than the first quarter of their junior year. Students planning to incorporate academic work from a study abroad program should obtain approval prior to departure.

Area Studies Emphasis Courses

In addition to the foundation courses, students pursuing the Area Studies emphasis must complete three courses, at least two of which must be upper division and no more than one of which may be in the student's academic major. Other courses may be approved with the permission of the associate provost for International Programs.

- ***Area Studies—Africa:*** ECON 134, 135; ENGL 35, 130, 157, 164, 165, 166; HIST 104, 107, 141, 142, 143, 144, 149, 157, 193; FREN 111, 112, 113; POLI 146; RSOC 19, 22L, 46, 81, 170, 191; TESP 131, 184
- ***Area Studies—Europe:*** COMM 199 (appropriate topic only); ENGL 149, 155, 168; 131, 132, 134, 136, 139, 192; FREN 108, 110, 111, 116, 170, 171, 172, 182, 183; GERM 110, 111, 150, 151, 160, 182, 183; INTL 110, 119; ITAL 113, 180, 182; SPAN 125, 150, 151; PHIL 119,129, 133, 144, 145; POLI 119, 132, 133, 134, 143, 144, 145
- ***Area Studies—Latin America:*** ANTH 185, HIST 64, 161, 162, 163, 164, 169, 196; POLI 124, 136, 136A, 137, 140, 196; SOCI 134, 135; SPAN 112, 130, 131, 135, 140, 141, 145, 146, 148

LATIN AMERICAN STUDIES

Director: Alma M. Garcia

The interdisciplinary minor in Latin American Studies (LAS) provides students with an understanding of the culture, society, and history of the nations of the Spanish- and Portuguese-speaking peoples in Latin America. The minor provides breadth and depth in the study of Latin America. It requires two foundational courses that offer an overall view of the major historical periods in Latin America, and offers specialized courses dealing with specific countries or themes. The minor prepares students to understand the connections between Latin America and Latin American immigrant communities in the United States and other parts of the world, and helps students gain an understanding of discipline specific or interdisciplinary research methods and the analytical tools to investigate and analyze issues in Latin America. The minor serves as a foundation for graduate studies in Latin America Studies and other disciplines including anthropology, history, political science, and sociology. It provides an innovative opportunity for students seeking careers in business, government, international marketing, law, and nonprofit organizations.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Latin American studies: seven courses, with at least four upper-division courses from at least three departments. No more than two courses can be from the department in which a student majors. Two of the required courses are foundational courses that provide students with a comprehensive understanding of Latin America as a world region. Each of the foundation courses covers a major historical period.

Foundational Course I

Serves as an introduction to Latin American culture and civilization from the Native American experiences, through the Spanish Conquest, to the independence of Latin American nations. *Note: The director may add new courses that fulfill this requirement.*

Students must select one of the following courses:

- ANTH 185. Peoples of Latin America
- ANTH 186. Mesoamerican Prehistory
- HIST 166. Latin America: Empires
- SPAN 130. Survey of Latin American Literature I

Foundational Course II

Serves as an introduction to Latin American culture and civilization by focusing on the formation in the 19th century of nation states and the forces shaping 20th and 21st century experiences. *Note: The director may add new courses that fulfill this requirement.*

Students must select one of the following courses:

- HIST 95. Introduction to the History of Modern Latin America
- POLI 137. Politics in South America
- SPAN 131. Survey of Latin American Literature II
- SPAN 137. Latin American Cultures and Civilizations

Language Requirement

Successful completion of SPAN 100 or 101, or equivalent Spanish or Portuguese language proficiency demonstrated by passing an examination given by the Department of Modern Languages and Literatures, or successful completion of one upper-division course in Latin American literature and culture taught in Spanish. *Note: SPAN 100 and 101 do not count towards the seven required courses for the LAS minor.*

Electives

Four electives (at least three of which must be upper-division) selected from three different departments. Only two electives can be from a student's major. In lieu of one of the electives, juniors and seniors can design an independent study with the approval of the director of Latin American Studies and an affiliated faculty member. The courses that may be used to fulfill this requirement are:

ANTHROPOLOGY COURSES

ANTH 184. Religion and Culture in Latin America
ANTH 185. Peoples of Latin America
ANTH 186. Mesoamerican Prehistory
ANTH 189. Ancient North America

ART HISTORY COURSES

ARTH 152. Arts of Ancient Mexico: From Olmec to Aztec

ENVIRONMENTAL STUDIES

ENVS 141. Environmental Biology in the Tropics
ENVS 144. Natural History of Baja
ENVS 146. Agriculture, Environment, and Development: Latin America

HISTORY COURSES

HIST 64. Central America
HIST 95. Introduction to the History of Modern Latin America
HIST 161. Modern Mexico
HIST 162. Argentina
HIST 163. Cuba and the Caribbean
HIST 164. Seminar: The Catholic Church in Latin America
HIST 166. Latin America: Empires
HIST 169. Special Topics in Latin American History
HIST 196. Seminar in Latin American History

MODERN LANGUAGES AND LITERATURES COURSES

SPAN 112. Mexican Culture
SPAN 113. The Revolution in Mexican Culture
SPAN 130. Survey of Latin American Literature I
SPAN 131. Survey of Latin American Literature II
SPAN 135. Colloquium: Latin American Literature and Culture
SPAN 136. Contemporary Latin American Short Story
SPAN 137. Latin American Cultures and Civilizations
SPAN 140. Modern Latin American Literature I
SPAN 141. Modern Latin American Literature II
SPAN 145. Mid-20th-Century Latin American Literature
SPAN 147. Cinema and the Novel in Contemporary Latin America
SPAN 148. 20th-Century Latin American Women Writers
SPAN 149. Contacts, Clashes, Border Crossings: Hybridity and Liminality in Latin American Cinema

POLITICAL SCIENCE COURSES

POLI 136. Politics in Central America and the Caribbean
POLI 136A. The Political Structures and Processes in El Salvador and Central America
POLI 137. Politics in South America

RELIGIOUS STUDIES COURSES

RSOC 33. Maya Spirituality
RSOC 136. Religion in Latin America
RSOC 139. Mexican Popular Catholicism and Gender
TESP 60. Hispanic Popular Religion
TESP 65. U.S. Hispanic Theology
TESP 109. Hispanic Spirituality: Guadalupe
TESP 111. Latin American Liberation Theology
TESP 165. Romero and the Salvadoran Martyrs

SOCIOLOGY COURSES

SOCI 135. Women and Social Change in Latin America

LATINOS LIVING OUTSIDE OF LATIN AMERICA REQUIREMENT

Students are required to complete one of the following courses.

Note: This requirement can also be fulfilled with a seminar/senior thesis course or an independent study course. The director may add new courses that fulfill this requirement.

ENGL 36. Chicano Literature
ENGL 140. Studies in Chicano Literature
ETHN 20. Introduction to Latina/o Studies
ETHN 112. Native Peoples of the United States and Mexico
ETHN 120. Mexican Immigration to the United States
ETHN 121. Chicana/Chicano Families and Gender Roles
ETHN 122. Chicána/Chicano Communities
ETHN 125. Latinas/os in the United States
ETHN 126. Latina/o Immigrant Detention and Incorporation in the Age of Terrorism
RSOC 12. Latinos and Lived Religion in the United States
SPAN 133. Mexican American Literature
TESP 60. Hispanic Popular Religion
TESP 65. U.S. Hispanic Theology
TESP 109. Hispanic Spirituality: Guadalupe
RSOC 139. Mexican Popular Catholicism and Gender
THTR 14. Chicana/o and Native American Theatre

Students are strongly encouraged to focus on Latin American/Latino peoples and cultures for the experiential learning requirement in the new Core Curriculum. Students are encouraged to participate in a study abroad program in Latin America. Courses taken in these programs may be accepted as requirements for the minor. Students must meet with the director of the Latin American Studies program before enrolling in Latin American study abroad programs.

MEDIEVAL AND RENAISSANCE STUDIES

Director: Phyllis Brown

The minor in Medieval and Renaissance studies offers students from all departments a cross-disciplinary and interdisciplinary program of study in Europe's Middle Ages and Renaissance. These periods lay on the edge of modernity, when the distinctive characteristics of the contemporary world began to form and when major new connections were made between Europe and Africa, the Middle East, East Asia, and the Americas. Study of these periods from many different points of view affords an opportunity to gain valuable perspectives on the ways that Medieval and Renaissance persons, events, and institutions helped to shape the modern world. Completion of the minor is noted on the student's transcript, and students receive a certificate acknowledging their accomplishment.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Medieval and Renaissance studies:

- Seven courses selected from three different departments with a maximum of three lower-division courses
- One of the upper-division courses must require an interdisciplinary research paper based on source materials and secondary works dealing with a topic rooted in the Medieval and/or Renaissance periods. The research paper requirement may be fulfilled by enrolling in MRST 199 under the supervision of an affiliated faculty member and the program director.
- The study of French, German, Greek, Italian, Latin, and/or Spanish is strongly recommended but not required. Students should consult with the program director to determine the cluster of courses best suited to their personal interests and preparation.

MEDIEVAL AND RENAISSANCE STUDIES COURSES

199. Independent Study

Directed reading and research in source materials and secondary works dealing with selected problems rooted in the Medieval and/or Renaissance periods, culminating in an interdisciplinary paper. *Prerequisite: Permission of program director and instructor.* (2–5 units)

Note: In addition to the courses listed below, certain sections of Cultures & Ideas 11A and 12A may be applied to the minor. Many departments offer occasional special topics, directed reading/directed research, and seminar courses on Medieval and Renaissance topics. Students should consult with the program director to determine the applicability of these, as well as of courses taken at other institutions or while studying abroad, to the minor.

ANTHROPOLOGY COURSES

ANTH 146. Anthropological Perspectives on Colonial California

ART HISTORY COURSES

ARTH 22. Introduction to the Arts of Early Modern Europe
ARTH 110. Early Christian and Byzantine Art
ARTH 114. Early Medieval Art
ARTH 120. 15th-Century Florentine Art
ARTH 121. Venice and the Other in the Renaissance
ARTH 122. The Art of Early Modern Rome
ARTH 128. 17th-Century Italian Painting and Sculpture
ARTH 164. Islamic Art, 600–1350 CE

CLASSICS COURSES

CLAS 135. Medieval Latin

ENGLISH COURSES

ENGL 41. Survey of English Literature I
ENGL 54. Shakespeare
ENGL 116. Shakespeare's Tragedies
ENGL 117. Shakespeare's Comedies
ENGL 118. Shakespeare Studies
ENGL 141. Studies in Medieval Literature
ENGL 142. Chaucer
ENGL 143. Studies in Renaissance Literature
ENGL 190. Senior Seminars (on Medieval and Renaissance topics)

HISTORY COURSES

HIST 91. Africa in World History
HIST 104. World History until 1492
HIST 117. State and Church in the Middle Ages, 1000–1450
HIST 118. Representation, Rights, and Democracy, 1050–1792
HIST 126. Conflicts in Medieval Christianity
HIST 127. The World of St. Francis
HIST 146A. Medieval and Early Modern Japan
HIST 147A. Premodern China in the World to AD 1600
HIST 166. Latin America: Empires

MODERN LANGUAGES AND LITERATURES COURSES

FREN 115. Major Works of French Literature I
FREN 120. Moyen Age
FREN 130. Humanism and the Renaissance
ITAL 110. Italian Civilization I
ITAL 120. Survey of Italian Literature I
ITAL 130. Dante, La Divina Commedia I
ITAL 131. Dante, La Divina Commedia II
ITAL 140. Duecento, Trecento
ITAL 150. Quattrocento, Cinquecento (Rinascimento)
SPAN 120. Major Works of Spanish Literature I
SPAN 122. The Spanish Picaresque Novel
SPAN 123. Siglo de Oro Drama
SPAN 130. Survey of Latin American Literature I
SPAN 165. Cervantes: Don Quijote

MUSIC COURSES

MUSC 190. Music of the Middle Ages
MUSC 191. Music of the Renaissance
MUSC 42/142. Concert Choir (Performance)
MUSC 43/143. Chamber Singers (Performance)

PHILOSOPHY COURSES

PHIL 132. Medieval Philosophy

RELIGIOUS STUDIES COURSES

SCTR 26 NEW Gender in Early Christianity
SCTR 65. Early Christianity
TESP 79. Women in Christian Tradition
TESP 82. Witches, Saints, and Heretics: Religious Outsiders
TESP 118. Clare of Assisi and Ignatius of Loyola
TESP 143. Theology and Ethics of Thomas Aquinas

THEATRE COURSES

THTR 112. Special Topics in Theatre and Drama
THTR 113. Special Topics in Theatre and Drama (Seminar)
THTR 116. Shakespeare's Tragedies
THTR 117. Shakespeare's Comedies
THTR 118. Shakespeare Studies
THTR 120. Acting Styles I: Shakespeare

WOMEN AND GENDER STUDIES

WGST 48. Gender in Early Christianity

MUSICAL THEATRE

Director: Barbara Murray

The musical theatre minor offers experience and training in music, theatre, and dance as well as aspects of the visual arts and literature. Musical theatre is prominent in America as art, entertainment, social commentary, and civic engagement; it therefore plays a part in Jesuit education of the whole person for the service of others. The objectives of this program include entry-level proficiency for a career in performance, enhancement in teaching, or further training in graduate school; audition techniques; performance of acting, singing, and theatrical dance; and knowledge of the cultural history and various forms of musical theatre. The student may pursue and declare one of two tracks: American musical theatre or lyric theatre (opera/operetta).

REQUIREMENTS FOR THE MINOR

- Theory: MUSC 1 and 1A
- Singing: MUSC 34 and three quarters of on-campus private voice instruction
- Acting: THTR 24, 123
- Dance: DANC 40 and 43 for American track; DANC 40 and 46 (or higher level dependent upon proficiency) for lyric theatre track
- Students in American theatre option: DANC 55 or 155, THTR 165 and 80 or 180
- Students in lyric theatre option: MUSC 109, 153, and 194

PRE-HEALTH SCIENCES

Advisor: Steven L. Fedder

Santa Clara University has an excellent reputation for preparing students for careers in the health sciences. Most incoming students tend to be focused on either allopathic medicine or dentistry, but a much broader spectrum of careers can be equally or more attractive including osteopathic medicine, physical therapy, optometry, pharmacy, physician assistant, nurse practitioner, public health professional, and others. A Santa Clara education provides ample opportunity to acquire the academic foundations in natural science required by medical schools, and its broad liberal arts Core Curriculum also serves to develop the communication, personal interaction, and analytical skills needed both during medical school and in one's subsequent medical practice.

Although Santa Clara does not have a pre-med major, the courses prescribed by the Council of Education of the American Medical Association can be incorporated into several academic majors.

Most medical schools require:

- One year of general chemistry (CHEM 11, 12, and 13)
- One year of organic chemistry (CHEM 31, 32, and 33)
- One year of biology (BIOL 21, 24, and 25)
- One year of physics (PHYS 11, 12, and 13 or PHYS 31, 32, and 33)
- One year of mathematics, typically calculus (MATH 11 and 12), and a statistics course

In addition, many students become more skilled and competitive by enrolling in two or three upper-division science courses, often but not exclusively in biochemistry, genetics, and human physiology, which are helpful in preparing for the Medical College Admission Test (MCAT). The combination of Core Curriculum requirements with the University's focus on community involvement and issues of diversity will prepare students well for the newly revised MCAT 2015, with its greater emphasis on social, economic, and psychological determinants of health. The choice of academic major is much less important than completing the coursework above; however, many pre-health students select a natural science major such as biology, biochemistry, chemistry, or public health science. Students should thoroughly examine the Pre-Health Advising website at www.scu.edu/cas/prehealth, and should maintain regular contact with the pre-health sciences advisor throughout their undergraduate years for assistance with adjusting to college academic rigor and social life; developing an appreciation of the wide array of available health care careers; achieving a balance between academics, social life, work, health community volunteering, and internships; selecting the relevant entrance examinations; and applying to graduate health science programs.

PRE-LAW

Advisors: Brian Buckley, Lawrence Nelson, Terri Peretti, Diana Morlang, Melissa Donegan

Santa Clara University provides a wide range of opportunities for undergraduates to build a strong pre-law foundation. Early in their undergraduate program, pre-law students should consult not only with their major advisor but also with one of the designated pre-law advisors. Consultation with a pre-law advisor familiarizes the student with the rigors of law school, the practice of law, the burden of law school debt, and the means to best secure employment as an attorney. Advisors will help formulate a program to prepare students for the complexity of the application process, including preparation for the Law School Admission Test (LSAT). There is no specific major or curriculum required to qualify for law school admission. Successful law school applicants come from a diversity of majors such as anthropology, philosophy, communication, political science, physics, English, history, biology, and economics. However, to successfully prepare for the LSAT, students are advised to select courses that deepen reading comprehension and promote logical reasoning. Law school admissions officers generally recommend undergraduate preparation by selecting a major that demands discipline, analytical ability, research skills, close reading of texts, creativity, verbal skills, and precision in written and oral work. The departments of Philosophy and Political Science offer a pre-law emphasis within the major (in philosophy, it is also available within the minor). Elective courses also provide valuable training and breadth of academic and analytical experience. Some elective courses strengthen specific abilities, while others provide perspective on legal issues and topics. Possible electives include, but are not limited to, the following:

COMMUNICATION COURSES

COMM 20. Public Speaking
COMM 170A. Communication Law

ECONOMICS COURSES

ECON 126. Economics and Law

ENGLISH COURSES

ENGL 174. Nonfiction Writing
ENGL 177. Argumentation

ENVIRONMENTAL STUDIES COURSES

ENVS 120. Introduction to Environmental Law and Regulation in the United States
ENVS 122. Environmental Politics and Policy

PHILOSOPHY COURSES

PHIL 10. Ethical Issues in the Law
PHIL 25. Informal Logic
PHIL 111. Bioethics and the Law
PHIL 113. Ethics and Constitutional Law
PHIL 119. Special Topics in Applied Ethics: The Moral and Legal Status of Prenatal Humans
PHIL 154. Philosophy of Law

POLITICAL SCIENCE COURSES

POLI 45. Criminal Justice System
POLI 125. International Law
POLI 159. The Constitution and Liberty
POLI 160. The Constitution and Equality
POLI 161. Law and Politics in the United States

PSYCHOLOGY COURSES

PSYC 155. Psychology and Law

SOCIOLOGY COURSES

SOCI 159. Sociology of Crime
SOCI 160. Sociology of Law
SOCI 161. Sociology of Criminal Justice Systems

THEATRE COURSES

THTR 8. Acting for Nonmajors
THTR 21. Voice I: Voice, Speech, and Presentation Skills

PRE-TEACHING

Director: Carol Ann Gittens

Santa Clara University is accredited by the California Commission on Teacher Credentialing to offer professional preparation for prospective elementary school, middle school, and senior high school teachers. The Department of Education in the School of Education and Counseling Psychology offers graduate programs for the multiple-subject credential for elementary grades and the single-subject credential for secondary grades, both with a cross-cultural language and academic development emphasis. The teaching credential program at SCU is combined with a Masters of Arts in Teaching (MAT) degree. Students interested in teaching should consider completing an interdisciplinary minor in urban education offered through the College of Arts and Sciences.

The Future Teachers Project (FTP), formerly known as the Eastside Future Teachers Project, works with students from traditionally underrepresented groups throughout Silicon Valley and the greater Bay Area, who are interested in becoming teachers. Through innovative outreach and support programs, the goal is to develop leaders who will make an immediate impact on their communities. FTP scholars are generally recruited during high school and once at SCU, are considered for the FTP scholarship, which contributes to undergraduate studies and the credential/MAT program. The FTP is managed through the Liberal Studies Program.

Preparation for Multiple-Subject Credential

Students interested in a career in elementary school teaching should fulfill the requirements of the liberal studies major with a pre-teaching emphasis in the College of Arts and Sciences. Those requirements can be found in Chapter 3, College of Arts and Sciences. Students must demonstrate the subject matter competency component for the multiple-subject credential by passing the California Subject Examination for Teachers (CSET) for

Multiple Subjects. While students may sit for the examination whether or not they majored in liberal studies, both the examination and the liberal studies degree requirements are closely aligned with the state of California's elementary curriculum framework. Therefore, Santa Clara strongly recommends that students interested in being elementary school teachers major in liberal studies. An undergraduate minor in urban education is recommended for those students electing not to complete the liberal studies major. Students must also demonstrate basic educational skills by completing the Writing Skills exam that can be added to the CSET or by passing the California Basic Educational Skills Test (CBEST).

Preparation for Single-Subject Credential

Students interested in a career in secondary school teaching in a particular subject matter area should fulfill the requirements of the academic major of their intended teaching specialization. California teaching credentials are available in the following subject areas: agriculture, art, biological sciences, business, chemistry, English, geosciences, health science, home economics, industrial and technology education, mathematics, music, physical education, physics, general sciences, social science, world language (English language development), and world languages other than English. Students must demonstrate specific subject matter competency by passing the CSET in the subject area they desire to teach. Completing an undergraduate major in this subject area is not required but it is highly recommended. An undergraduate minor in urban education is also recommended. Students must also demonstrate basic educational skills by passing the CBEST.

Selected California state credential coursework or examination requirements may be waived by successful completion of one or more specific undergraduate courses on the provisions and principles of the United States Constitution, such as POLI 1, HIST 96A, or HIST 96B.

Requirements for Multiple-Subject and Single-Subject Credentials

The minimum requirements for the multiple-subject or single-subject teaching credential include:

- A bachelor's degree in a subject area from an accredited institution
- Demonstrated knowledge of the United States Constitution by completion of undergraduate coursework or passage of an approved examination
- Demonstrated basic educational skills (see sections above for specific program requirements)
- Completion of an approved program of professional education, including field experience achieved through student teaching or internship
- Completion of a state-approved subject matter preparation program or passage of the CSET, a subject-area competency examination, in the area one plans to teach
- For multiple-subject credential candidates only: Demonstrated knowledge of the various methods of teaching reading by passing the Reading Instruction Competence Assessment (RICA) examination

Fifth-Year Teaching Credential Program

The multiple-subject or single-subject teaching credential can be completed as part of the Masters of Arts in Teaching (MAT) program. This program requires a fifth year of study following the bachelor's degree and qualifies the student for a preliminary teaching credential. The MAT program includes graduate coursework in educational foundations, curriculum design, teaching methods, and supervised student teaching. Students seeking additional information regarding the MAT program with a multiple-subject or single-subject teaching credential should contact the Graduate Department of Education in the School of Education and Counseling Psychology.

URBAN EDUCATION

Director: Carol Ann Gittens

The interdisciplinary minor in urban education provides Santa Clara undergraduate students seeking to become elementary or secondary teachers with the basics in educational theory, urban school observation and reflective experiences, Constitutional history of the United States, and the sociological and psychological foundations of education. The urban education minor has two distinctive components. First, the minor contains foundational courses necessary for a career in education. Second, the minor focuses on societal problems such as poverty, crime, and prejudice, and how these issues impact today's youth and families. Through the urban education minor, students will critically evaluate the modern social challenges facing teachers and policymakers who struggle daily with how to strengthen the educational experience for children. This minor is recommended for students from diverse majors who are interested in careers that involve working directly with children and families from multicultural and multifaceted backgrounds. Students majoring in liberal studies may not minor in urban education.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in urban education:

- POLI 1 or HIST 96A or HIST 96B
- LBST 70, 106, 138, 198A/B
- PSYC 134
- PSYC 185 or PSYC 172

GERONTOLOGY CERTIFICATE PROGRAM

Director: Patricia M. Simone

Gerontology is the study of adults over 65 and of the aging process. Majors from any field may enhance their credentials and their ability to work with this population through the gerontology certificate program. Students examine influences on the roles and quality of life of aged adults as well as physical and psychological aspects of aging. Courses investigate perceptions about aging and aged adults in various societies and how the experiences of older people differ according to culture, ethnicity, class, and gender. Students complete a practicum that gives them experience working with aged adults. Completion of the gerontology certificate program is noted on a student's transcript and with a certificate acknowledging their achievement.

REQUIREMENTS FOR THE CERTIFICATE

Students must complete the following requirements to receive a certificate in gerontology:

- One lower-division course from the following: SOCI 1 (Introduction to Sociology), ANTH 3 (Introduction to Anthropology), PSYC 1 or PSYC 2 (Introduction to Psychology), or PHSC 21 (Health and Aging).
- Four upper-division courses from the following (one must be ANTH 172 or PSYC 196): ANTH 172 (Anthropology of Aging), PSYC 196 (Psychology of Aging), PSYC 117 (Health Psychology), PSYC 119 (Death and Dying), SOCI 172 (Management of Health Care Organizations), SOCI 138 (Populations of India, China, and the U.S.), SOCI 148 (Stakeholder Diversity in Contemporary American Organizations), TESP 157 (Ethics in Health Professions), or any gerontology-related course with approval of the director
- A gerontology-related practicum approved by the director (typically completed during your senior year)

4

Leavey School of Business

Dean: Caryn Beck-Dudley
Senior Assistant Dean, Undergraduate Business Programs: Jo-Anne Shibles

The Leavey School of Business offers professional business education within the larger context of academic excellence in the Jesuit educational tradition. The school provides undergraduate students with both the technical skills necessary for success in business and the ethical, global, and humanistic perspectives that are hallmarks of a liberal arts education. The undergraduate program strives for a mix of theory and practice and emphasizes the development of leadership skills.

UNDERGRADUATE DEGREES

The Leavey School of Business confers the degree of bachelor of science in commerce with majors in accounting, accounting and information systems, economics, finance, management, marketing, and management information systems. The school also offers a minor in management information systems and interdisciplinary minors in entrepreneurship, international business, and retail studies.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN COMMERCE

To qualify for the degree of bachelor of science in commerce, students must complete a minimum of 175 quarter-units of credit (of which at least 60 must be in upper-division courses) and satisfy the requirements of the Undergraduate Core Curriculum, the Leavey School of Business curriculum, and the departmental major.

The School of Business strictly enforces prerequisites. Having all students come into courses with the same requisite knowledge and skills ensures equity, a common starting point, and is intended to increase the likelihood of student success. Prerequisite requirements must be successfully completed or in progress ***prior*** to enrollment in the course that requires the prerequisite.

Undergraduate Core Curriculum

Critical Thinking & Writing

- Critical Thinking & Writing 1 and 2 from list of approved courses

Cultures & Ideas

- Cultures & Ideas 1 and 2 from list of approved courses
- Cultures & Ideas 3 with MGMT 80 when the course is taken on the SCU campus. When MGMT 80 is not taken on the SCU campus, students choose from a list of approved courses.

Second Language

Native English-speaking students fulfill this requirement in one of three ways:

- Successful completion of the second course of the first-year, college-level sequence in a classical or modern foreign language
- Demonstration of an equivalent level of proficiency by passing a language proficiency examination supervised by the departments of Classics or Modern Languages and Literatures
- Obtaining a minimum score of 4 on the Advanced Placement Examination in a classical or modern foreign language
- International Baccalaureate and International A level exams

Students for whom English is not their native language may satisfy this requirement by submitting a petition to the chair of the Department of Modern Languages and Literatures and the director of the Core Curriculum with professionally recognized documentation of proficiency in a language other than English. Such documentation includes but is not limited to a Test of English as a Foreign Language (TOEFL) examination score of 213 computerized or 550 paper and pencil examination.

Mathematics

Two mathematics courses:

- MATH 30 and 31 or MATH 11 and 12

Most business students take the calculus for business courses: MATH 30 and 31. Students who plan to take additional math should consider taking the calculus and analytic geometry courses: MATH 11 and 12.

Religion, Theology & Culture

- Religion, Theology & Culture 1 from list of approved courses
- Religion, Theology & Culture 2 from list of approved courses
- Religion, Theology & Culture 3 from list of approved courses

Ethics

- One business ethics course: MGMT 6 or PHIL 6

Civic Engagement

- MGMT 162 and MGMT 6 or PHIL 6

Diversity

- One course from list of approved courses

Arts

- One course from list of approved courses

Social Science

- ECON 1

Natural Science (with lab)

- One course from list of approved courses

Science, Technology, and Society

- OMIS 34

Students who are considering a major in accounting should take ACTG 134 to satisfy the Science, Technology, and Society requirement.

Students who declare a major or a minor in management information systems will take OMIS 30 or OMIS 31, which will satisfy the information systems requirement in the business core, and may choose a course to satisfy Science, Technology, and Society from the list of approved courses.

Experiential Learning for Social Justice

- One course from list of approved courses

Advanced Writing

- BUSN 179

Pathways

- At least 16 units (usually four courses) from list of approved courses in one Pathway of the student's choice

Leavey School of Business Core Curriculum: Lower Division

Introduction to Business

Two courses:

- BUSN 70 (to be completed as a first-year student unless you are an internal or external transfer student)
- OMIS 15 or 17

Business Law

- BUSN 85

Economics

Three courses:

- ECON 1, 2, and 3

Accounting

Two courses:

- ACTG 11 and 12

Students should take ACTG 11 in the fall or winter quarter of their sophomore year and ACTG 12 in the subsequent winter or spring quarter.

Data Analysis

Two courses:

- OMIS 40 and 41 or OMIS 40 and ECON 41 and 42 (for economics majors)

Information Systems

- OMIS 34

Students who are considering a major in accounting should take ACTG 134 to satisfy the information systems requirement.

Students who declare a major or a minor in management information systems will take OMIS 30 or OMIS 31, which will satisfy the information systems requirement in the business core, and must choose a course to satisfy Science, Technology, and Society from the list of approved courses.

Leavey School of Business Core Curriculum: Upper Division

Common Core of Knowledge

Four courses:

- FNCE 121
- MGMT 160
- MKTG 181
- OMIS 108

Capstone Course

One course (to be taken during the senior year):

- MGMT 162

MINORS IN THE LEAVEY SCHOOL OF BUSINESS

Departmental Minors

The Department of Operations Management and Information Systems offers a minor in management information systems, and the Department of Economics offers a minor in economics through the College of Arts and Sciences. Descriptions of these two minors and associated requirements can be found in the respective department sections of this chapter.

Interdisciplinary Minors

The Leavey School of Business administers three interdisciplinary minors open to business students and nonbusiness students: entrepreneurship, international business, and retail studies. Descriptions of these minors and associated requirements can be found in the Interdisciplinary Minors section at the end of this chapter.

GENERAL BUSINESS COURSES

70. Contemporary Business Issues

An introduction to the nature, forms, and objectives of the contemporary business firm and its relation to the environment in which it operates. (4 units)

71. Foundations of Leadership

Presents an introduction to specific practices of effective leadership through a series of speakers, directed readings, and reflective writing assignments. *Prerequisite: First-year or sophomore business student.* (2 units)

72. Business Leadership Skills

Designed to continue learning from BUSN 71 by focusing on leadership skills specific to a business environment. Course integrates group discussion, selected readings, experiential learning, and reflective engagement experiences. *Prerequisites: BUSN 71 and first-year or sophomore business student.* (2 units)

85. Business Law

This course is designed to give the student an overview of the primary substantive areas affecting business transactions including the law of contracts, torts, employment, and crimes. It is intended to make the student aware of fundamental legal principles and their application in the business context. *Prerequisites: BUSN 70 and completion of 45 units, or permission of instructor.* (4 units)

132. Contemplative Leadership and Sustainability Program (CLASP)

This course is designed to provide students opportunities to learn and rehearse contemplative leadership practices and explore the relationship between personal values, business, and sustainability. CLASP introduces students to issues of sustainability in industry, provides face-to-face encounters with professionals and companies/organizations already "doing the work" of sustainability, and immerses students into the region's natural and social environments via day-long weekend excursions. Assignments include keeping a weekly journal, weekly readings, small and large group discussions, writing a short paper, and a group project. *Prerequisites: Business, engineering, or Pathways student in one of the following Pathways: Leading People, Organizations, and Social Change; Food, Hunger, Poverty, and Environment; or Sustainability.* (2 units)

133. CLASP Alaska Immersion Trip: Climate Change and Renewable Energy

This course is designed to provide students with a sustainability-focused immersion experience in the business environment of renewable energy. Alaska provides a unique opportunity to witness the effects of climate change and examine the tension that exists in energy acquisition from fossil fuels and/or renewable sources. Santa Clara University has partnered with the city of Galena and Hero Projects to provide undergraduate students an opportunity to work with villagers in Alaska to bring renewable energy solutions to rural communities. Students will return to SCU having conducted a feasibility study/market analysis, gather data to begin innovating for social benefit, be exposed to a marginalized culture and environment, and gain an understanding of the relationship between cultural traditions, economic developments, producing sustainable energy in a rural setting, and caring for the environment. Successful completion of the course and the immersion trip qualifies for ELSJ credit. (2 units)

145. Entrepreneurship Practicum

An opportunity for select students to apply their entrepreneurial skills in emerging companies through a structured placement in a Silicon Valley internship. (2–5 units)

150. Feeding the World

In this course, students examine the global system for the production and distribution of food, assess the ability of the system to satisfy the human demand for food, and evaluate the impact of the system on the natural environment. Students will employ tools from statistics, operations, and economics to describe, analyze, and forecast imbalances between food supply and food demand. Through a term project, students use their new skills to examine the food system in a developing nation experiencing chronic hunger. (5 units)

151A. and B. Food, Hunger, Poverty, Environment Immersion

This course is designed to help students meet their social justice-oriented experiential learning requirements while learning about issues related to food production and consumption, hunger, poverty, and the environment. The course blends short lectures, guided discussions and reflections, and a 12- to 14-day immersion in a selected country interacting with local people of diverse backgrounds for experiential active learning. The goal is to increase students' understanding of the role of business in the developing world and to explore the role of business in alleviating poverty through economic development and the pursuit of social justice. *Both quarters are required to participate in the immersion program.* (1 unit spring, 2 units fall)

170. Contemporary Business for Nonmajors

This course is specifically designed for upper-division (junior and senior), nonbusiness majors who are interested in learning about business firms and their relation to both the global and local environment in which they operate. Course will use a business simulation as a key learning method, in addition to lectures and small group discussion. *This course is not open to students who have completed BUSN 70. Prerequisite: Must have completed 87.5 units or more.* (5 units)

173. Leadership Experience

This course is designed to provide an opportunity to reflect upon formative leadership experiences and develop an authentic leadership identity based upon core values and strengths. To guide reflection, the course incorporates a variety of assessment instruments, group discussions, guest speakers, readings, and personal writing assignments. Students are challenged to analyze and reflect upon their leadership experiences, listen to and learn from the leadership experiences of others, write and share their personal leadership story, identify their unique areas of leadership competency and strength, and craft a personal vision of leadership to strive for after graduation. *Prerequisites: A business major with junior or senior standing.* (2 units)

179. Communication in Business

Students will learn to communicate effectively in a business context, including producing quantitative and qualitative analyses and evaluations; and creating professional multimedia projects, proposals, and presentations. Students will also develop skills in formal and informal business writing and discourse (briefings, reports, letters, emails, news briefs, memos, interviews, social media, infographics, etc.). The course will culminate in the design, development, and delivery of a group project that bridges SCU's mission with the needs of a Silicon Valley organization, presented to an internal and external panel of industry experts. *Prerequisites: CTW 1 & 2 and OMIS 40. Must have completed at least 60 units.* (5 units)

180. Presentations in Business

This course is an advanced seminar designed to explore presentation techniques that shape business environments. A central purpose of the class is to cultivate professional presentation skills expected in the global workplace while recognizing how behavior, both informal and formal, can reflect on career development. Thus, through various communication media and platforms, such as pitch-the-product exercises, tele-presence presentations, and small group podcasts, this class will build effective and real world business presentation skills. *Prerequisite: BUSN 179, ENG 179, or ENG 183.* (5 units)

182. Global Experience Practicum

Opportunity for business students to study global business issues in specific countries or regions around the world. The practicum includes selected readings, several special lectures on topics related to the target country or region, and an in-country learning session, typically two weeks after the end of spring quarter. Each practicum is led by a Leavey School of Business faculty member, who travels with the students to the country to lead integration sessions, guide discussions, and generally enhance the student's learning experience. (2 units)

188. Field Studies: NPI Small Business Improvement Project

The purpose of this course is to engage undergraduate business students in further development of the Neighborhood Prosperity Initiative (NPI) through direct engagement with a local neighborhood. Students will be involved in conducting an analysis of a local business or organization to assist in developing a partnership for the economic well-being of the community. The purpose of this partnership is to provide opportunities for undergraduate business students to contribute to the economic growth and well-being of a local neighborhood in a sustained (multi-year) and ethical way that promotes student learning and positive benefit for the community partner(s). *Course fulfills the ELSJ Core requirement. Note: This course requires participation in community-based learning (CBL) experiences off campus.* (2 units)

189. Low Income Tax Clinic (LITC): Ethics and Practice of Offers in Compromise (OIC)

This course is designed to develop and refine students problem-solving skills, and cultivate practical wisdom through the application of legal doctrine and theory to the dynamics of individual client interaction. Students will gain experience in the tax practice and procedure involved in personal income tax collections. The focus of the LITC is to provide students with the skills necessary to exercise professional judgment in the representation of real clients. Throughout the course, students will be expected to critically analyze the facts of their client's case, apply relevant legal theory and doctrine in client interviewing and counseling, communicate effectively, orally and in writing, and exercise professional judgment. *Prerequisites: ACTG 11, junior or senior standing, or permission of instructor.* (5 units)

195A. and B. The Global Fellow Experience

This course is designed for students involved in the Global Fellows program. The introductory course introduces students to the macro issues and challenges faced by the underserved populations of the world and provides a context for evaluating the global costs of injustice. Through the framework of business and organizational operations, students develop the tools to evaluate best practices as applied to living a civic life. Students will be exposed to academic research, guest speakers, interactive exercises, and readings in preparation for their summer fellowship, where the course learning will be applied to a work experience. The reflection course segment is designed for students who spent time during the summer as Global Fellows.

The primary goal of the course is to allow each student to reflect upon their experience and deepen their lessons learned. The secondary goal is to have the Global Fellows share their experience with the SCU community, thus bringing awareness of global issues to a wider audience. *In certain cases, the reflection segment course will fulfill the core requirement for ELSJ. Must be a Global Fellows participant.* (2 units for each course segment)

196. Leadership Practicum

Opportunity for business students to obtain advanced experience in leading, facilitating, directing, evaluating, and advising within a Leavey School of Business school-wide or interdisciplinary project, class, or initiative. This practicum generally includes selected readings, reflective engagement activity, personal leadership assessment, and writing assignments. *Requires approval of the assistant dean.* (1–5 units)

197A/B. Business/Engineering Project Collaboration

This practicum gives business students an opportunity to work with senior-level engineering students on engineering design projects. This is an excellent opportunity for cross-functional learning in a team environment and for business students to practice the activities they learned in previous business school courses. This practicum provides exposure to technology and valuable experience in product development, innovation, and entrepreneurship. The student will perform a business analysis of the project and assist in producing a business plan, which may involve assessing the project for commercialization, defining and characterizing the market, and exploring any intellectual property issues. *Must be a Leavey School of Business junior or senior to enroll.* (2 units per quarter: winter and spring quarters)

198. Internship/Practicum

Opportunity for upper-division students—typically involved with school-wide or interdisciplinary programs, projects, or initiatives—to work and study in or with for-profit and nonprofit organizations. This practicum generally includes selected readings, a reflective engagement activity, and a written report. *Requires approval of the assistant dean or dean. May be included as fulfilling a requirement for a major only with permission of that department chair.* (1–5 units)

CENTERS, INSTITUTES, AND SPECIAL PROGRAMS

Accelerated Cooperative Education Program

The Accelerated Cooperative Education (ACE) program offers a unique, challenging, and rewarding experience for business students. Participants receive a program of workshops designed to build, strengthen, and enhance their professional development and leadership skills, introductions to ACE business partner companies for a paid summer internship, mentoring by senior executives, and fast-track admission to the Santa Clara MBA program. Students are selected into this program through an application process.

Leavey Scholars Program

The Leavey Scholars Program offers special opportunities for undergraduate business students who have established a record of excellence in their Santa Clara studies. Leavey Scholars are invited to enroll in honors sections of selected business courses that are especially rigorous and academically challenging. Successful completion of the program warrants the designation "Leavey Scholar" on the student's transcript.

Center for Innovation and Entrepreneurship

The Center for Innovation and Entrepreneurship (CIE) provides networking, educational, and advisory services for members of the Santa Clara University community and drives entrepreneurship curricula through the moderation of the Entrepreneurship Leadership Team. The CIE coordinates the minor in entrepreneurship and the Undergraduate Entrepreneurship Program, which offers students the opportunity to develop their knowledge, skills, and experience in entrepreneurship through curricular and co-curricular activities. The program features internship opportunities at Silicon Valley startups and offers a variety of events and enrichment activities including a speaker series, partnerships on campus, and Global Entrepreneurship Week. In addition, the CIE provides students with business plan review and coaching both on an ad-hoc basis and also through its quarterly Office Hours for Entrepreneurs series, networking mixers, field trips, and Silicon Valley event attendance opportunities. The annual Outstanding Student Entrepreneur Award is given at the end of the year and recognizes the graduating student who has made the greatest contribution to the entrepreneurship program. The CIE also serves as sponsoring advisors of the Santa Clara Entrepreneur Organization (SCEO), a student club that provides a forum for learning outside the classroom. The CIE Advisory Board includes distinguished alumni entrepreneurs, venture capitalists, venture attorneys and accountants, corporate executives, and the deans of the schools of business, engineering, and law, and the college of arts and sciences.

Food and Agribusiness Institute

The Food and Agribusiness Institute (FAI) offers undergraduate and graduate courses on topics related to the food industry. At the undergraduate level, the FAI sponsors the Food, Hunger, Poverty, and Environment Pathway. At the graduate level, the FAI sponsors a specialization in food and agribusiness for students pursuing the MBA degree. Enrichment programs offer students the opportunity to enhance their educational experience through internships, field trips, and a mentor program. The immersion and field experiences organized by the FAI expose students to the rich diversity of the food industry through domestic and international travel. The FAI also hosts events, lectures, food industry research, conferences, and programs for the campus and for the food and agribusiness community.

Retail Management Institute

The Retail Studies Program offered by the Retail Management Institute is an interdisciplinary minor open to all undergraduates. The minor provides students with a strong business background for a leadership role in the retail industry in fields such as buying and planning, e-commerce, Internet marketing, store management, global sourcing, and information technology. The institute facilitates internships with retail organizations and mentoring sessions for students with industry leaders. It brings leading executives to speak at campus events about cutting edge issues that impact consumers, retailers, and society at large.

Neighborhood Prosperity Initiative

Launched in January 2012, the Leavey School of Business Neighborhood Prosperity Initiative (NPI) provides opportunities for students to contribute to and learn from businesses, individuals, and organizations in low-income neighborhoods in the San Jose area about issues of economic prosperity. NPI is part of SCU's larger place-based initiative, the SCU Thriving Neighbors Initiative, which actively promotes strategic ties between Santa Clara University and the Greater Washington Community of San Jose in order to advance the prosperity and education of both SCU students and neighborhood students as whole persons in whole communities. The primary components of NPI are the Field Studies course (BUSN 188) and the NPI Fellows program, which places students in paid internships in local nonprofit organizations during winter and spring quarters.

DEPARTMENT OF ACCOUNTING

Professors: Yongtae Kim (*Department Chair*), Susan Parker
Associate Professors: Michael Calegari, Michael J. Eames (*Robert and Barbara McCullough Professor*), Haidan Li, Siqi Li, Suzanne M. Luttman, Jane A. Ou, James F. Sepe, Neal L. Ushman

The Department of Accounting strives to provide high-quality accounting instruction, conduct research that contributes to the understanding of accounting issues, and provide superior service to students and alumni, the profession, the University, and the business community. In addition to the major in accounting, the Accounting and Operations Management and Information Systems departments offer a joint major in accounting and information systems.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling Undergraduate Core Curriculum and Leavey School of Business requirements for the bachelor of science in commerce, students majoring in accounting or accounting and information systems must complete the following departmental requirements:

Major in Accounting

- ACTG 20, 130, 131, 132, 134, 135, 136, and 138

Note: Accounting majors may use ACTG 134 to satisfy both the information systems requirement in the Leavey School of Business curriculum and the Science, Technology & Society requirement in the 2009 University Core.

Major in Accounting and Information Systems

- ACTG 20, 130, 131, 132, 135, 136, and 138
- OMIS 30 or 31
- OMIS 105, 106, and 150
- One course from OMIS 107, 111, 113, 135, 137

Accounting and information systems majors may use either OMIS 30 or 31 to satisfy the information systems requirement in the Leavey School of Business curriculum.

LOWER-DIVISION COURSES

5. Personal Financial Planning

Overview of the tools and information necessary for personal business decision making. Includes analysis of financial services, credit and borrowing, taxes, compensation planning, consumer purchases, housing decisions, the time value of money, savings, and investments. (4 units)

11. Introduction to Financial Accounting

Overview of the role of financial information in economic decision making. Includes topics such as the dissemination of accounting information and its impact on capital markets, and the analysis of corporate annual reports. Coverage of financial statements and their use in determining profitability and the financial condition of a business entity. *Prerequisites: Must be a second-year student and have completed BUSN 70 or 170. Seniors who have not completed BUSN 70 may take this class with department permission on a space-available basis.* (4 units)

12. Introduction to Managerial Accounting

Introduction to the role of financial information in the decision making of business managers. The objective is to investigate the use of business data in typical managerial functions such as planning, control, and making operational decisions. *Prerequisite: ACTG 11.* (4 units)

20. Recording Financial Transactions

Insight into the basic principles and mechanics behind the preparation of financial statements. Focus is on the accounting model, accrual versus cash accounting, and the accounting processing cycle. *Prerequisites: ACTG 11 and must have 70 completed units or department's permission prior to enrollment. Course may not be taken before spring quarter of the sophomore year. For fall and winter enrollment, students must be concurrently enrolled in ACTG 130.* (2 units)

UPPER-DIVISION COURSES

130. Intermediate Financial Accounting I

An in-depth study of the concepts underlying external financial reporting, along with expanded coverage of basic financial statements. Detailed analysis of the measurement and reporting of current assets, operational assets, and investments, including the treatment of related revenues and expenses. Significant attention is given to income statement presentation and revenue recognition. *Prerequisites: Open to business majors only. ACTG 12 and 20 and must have 96 completed units or department's permission prior to enrollment. (ACTG 20 may be taken concurrently.)* (5 units)

131. Intermediate Financial Accounting II

Intensive analysis of generally accepted accounting principles as applied to accounting for liabilities, stockholders' equity, and the statement of cash flows. Accounting for income taxes, pensions, leases, and the reporting of corporate earnings per share. *Prerequisite: Open to business majors only. ACTG 130.* (5 units)

132. Advanced Financial Accounting

The main subject is accounting for business combinations, and the consolidation of financial statements of a parent company and its subsidiaries. A broad spectrum of financial reporting issues in the context of consolidated financial statements is examined. The course also covers partnership accounting and other advanced financial accounting topics. *Prerequisite: Open to business majors only. ACTG 131.* (5 units)

134. Accounting Information Systems

Introduction to procedures by which accounting data is captured, processed, and communicated in computerized information systems. The course describes the ways that accounting information systems are designed, used, and maintained by accounting professionals with an emphasis on the internal controls over such systems. *Prerequisites: Open to business majors only. ACTG 11 and 12 (may be taken concurrently).* (5 units)

135. Auditing

Introduction to the basic concepts of auditing. Discussion of applicable regulations, the audit risk model, and client risk assessment. Focus is on an overview of the audit process. Auditors' professional and ethical responsibilities, sampling, and historical cases will also be discussed. *Prerequisite: Open to business majors only. ACTG 131. (ACTG 131 may be taken concurrently.)* (5 units)

136. Cost Accounting

Analysis of cost accounting with a strategic emphasis. Selected topics include process costing, activity-based costing, variance analysis, joint cost allocations, and the Theory of Constraints. *Prerequisite: Open to business majors only. ACTG 130.* (5 units)

138. Tax Planning and Business Decisions

A basic introduction to the tax treatment of transactions and events affecting both individuals and businesses and the conceptual framework underlying taxation. Includes issues of importance for successful tax planning with an emphasis on income and expense recognition, individual taxation, and property transactions. Assumes no prior knowledge of the tax law. *Prerequisites: Open to business majors only. ACTG 11 and 12 (may be taken concurrently).* (5 units)

140. Government and Nonprofit Accounting

Accounting and reporting requirements used by government and not-for-profit (NPO) entities. For governmental accounting, the class focuses on the categorization of the major government fund types and the terminology associated with Governmental Accounting Standards Board (GASB) Generally Accepted Accounting Principles (GAAP). For NPO accounting, the class focuses on the provisions of FAS 116 and FAS 117. *Recommended for students taking the Certified Public Accountant (CPA) Exam. Prerequisites: Open to business majors only. ACTG 131.* (3 units)

142. Business Law for Accountants

Legal theory and mechanisms designed to facilitate commercial transactions within our society. Areas covered include those dealing with integral aspects of business transactions: business organizations; contract and sales law; commercial paper; and secured transactions. *Recommended for students taking the CPA Exam. Prerequisite: ACTG 131. Restricted to junior- and senior-declared accounting majors.* (5 units)

143. International Financial Reporting Standards and FASB Updates

An in-depth study of the major differences that exist between International Financial Reporting Standards and U.S. GAAP. The course will also provide an update for students on the content of Financial Accounting Standards Board (FASB) pronouncements that have been issued in the prior year. *Prerequisites: Open to business majors only. ACTG 130 and 131.* (3 units)

144. Accounting Ethics

This course is designed with a particular focus on the roles and ethical responsibilities of the accounting, auditing, and tax professions; ethical behavior by management; and the legal guidelines that address behavior in a business setting. *Prerequisites: Open to business majors only. ACTG 11 and 12, and either PHIL 6 or MGMT 6.* (5 units)

148. Taxation of Business Entities

An advanced tax course covering the income tax treatment of transactions involving various types of business entities. Topics include the taxation of corporate entities (both C and S corporations) as well as partnerships. Addresses tax issues related to estates and trusts. Includes calculation of current and deferred taxes and the study of common tax issues arising in multinational transactions. *Prerequisites: Open to business majors only. ACTG 131 and 138.* (5 units)

150. Financial Fraud: Detection and Investigation

Forensic accounting deals with the application of accounting methods to legal problems, and comprises investigative accounting and litigation support activities. Investigative accounting (usually referred to as fraud accounting) refers to the role of the accountant in determining the existence and extent of asset misappropriation and/or financial statement fraud. Litigation support activities include those professional services provided by accountants to attorneys in support of civil or criminal litigation. In addition to examining both aspects of forensic accounting, the legal system and the role of the forensic accountant as an expert witness will be discussed. *Prerequisite: Open to business majors only. ACTG 131.* (5 units)

151. Financial Statement Analysis

Provides a framework for analyzing financial statements and develops skills useful in evaluating company performance, liquidity, solvency, and valuation in the context of the company's strategy and competitive environment from a user perspective. *Prerequisites: Open to business majors only. ACTG 11 and FNCE 121 or 121S.* (5 units)

152. International Accounting and Financial Reporting

Understanding similarities and differences in financial reporting practices globally is vital for all organizations involved in international business. The course takes a user perspective to international financial reporting. It examines economic and social factors that affect financial reporting practices, classifies global patterns in financial reporting, and studies the effect of the diversity in financial reporting on corporate investment and financing decisions. Technical issues covered include accounting for foreign currency transactions, accounting for the effects of inflation, international transfer pricing, and international financial statement analysis. *Prerequisites: Open to business majors only. ACTG 130 and MGMT 80.* (5 units)

161. Junior Contemporary Business Seminar Series I

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisites: Open to accounting and accounting and information systems majors only. ACTG 12 and 20. (ACTG 20 may be taken concurrently.)* (2 units)

162. Junior Contemporary Seminar Series II

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisites: Open to accounting and accounting and information systems majors only. ACTG 12 and 20. (ACTG 20 may be taken concurrently.)* (2 units)

171. Senior Contemporary Business Seminar Series I

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisite: Open only to senior-declared accounting and accounting and information systems majors.* (2 units)

172. Senior Contemporary Business Seminar Series II

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisite: Open only to senior-declared accounting and accounting and information systems majors.* (2 units)

191. Peer Educator in Accounting

Work closely with the department to help students in core accounting classes, understand course material, think more deeply about the material, and feel less anxious about testing situations. *Prerequisites: Declared accounting major and permission of instructor and chair required prior to enrollment.* (1 or 2 units)

194. Accounting Case Analysis

A practicum in which students form teams, research accounting issues, present the results of their research, and explain their research recommendations before a panel of judges. This course may be repeated for credit. *Prerequisite: Enrollment is by permission of the department chair.* (1 or 2 units)

197. Special Topics in Accounting

Offered occasionally to introduce new topics not covered by existing electives. Consult quarterly schedule of classes for description. *Prerequisite: ACTG 131.* (2–5 units)

198. Accounting Internship

Opportunity for upper-division students to work in local accounting or corporate firms. Two written reports and the employer's evaluation of the student's work will be required. This course may be repeated for credit depending on nature of assignment. *Prerequisites: Declared accounting major and permission of instructor and chair.* (2–5 units per quarter, up to a maximum of 10 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. *Prerequisites: Declared accounting major and permission of instructor and chair.* (1–5 units)

DEPARTMENT OF ECONOMICS

Professors Emeriti: Henry G. Demmert, Thomas Russell, Thaddeus J. Whalen Jr.
Professors: Mario L. Belotti (*W.M. Keck Foundation Professor*), Alexander J. Field (*Michel and Mary Orradre Professor*), John M. Heineke, Kris J. Mitchener (*Robert and Susan Finocchio Professor*), William A. Sundstrom
Associate Professors: Linda Kamas (*Department Chair*), Michael Kevane, Serguei Maliar, Helen Popper, Dongsoo Shin
Assistant Professors: Christian Helmers, John Ifcher, Thuy Lan Nguyen, Gonçalo Alves Pina, Teny Shapiro
Lecturer: Adina Ardelean

As one of the social sciences, economics studies how the choices we make as individuals—as consumers and producers, as savers and investors, as managers and employees, as citizens and voters—combine to determine how society uses its scarce resources to produce and distribute goods and services. This practical discipline provides insights into important issues such as the determinants of wealth and poverty; unemployment, inflation, international trade, and economic growth; and success and failure in the marketplace. The rigorous, systematic analysis that the study of economics brings to bear on these and other real-world issues provides excellent preparation for careers in both the private and the public sectors, as well as for graduate study in economics, business, public policy, and law. Economics graduates pursue varied careers in business, law, banking and finance, government service, education, and private consulting. Students considering graduate study in economics leading to a master's or doctoral degree are strongly encouraged to meet with their advisor as early as possible to plan an appropriate course of study.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum and Leavey School of Business requirements for the bachelor of science in commerce degree, students majoring in economics must complete the following departmental requirements:

- ECON 41 and 42 (satisfies OMIS 41 requirement in the Leavey School of Business core)
- ECON 113, 114, 115, and 181 or 182
- Three upper-division economics electives, at least two of which must be completed after ECON 113 and 115

REQUIREMENTS FOR THE MINOR

Students with a minor in economics through the College of Arts and Sciences must complete the following requirements:

- ECON 1, 2, 3, 113 , and 115
- Two additional upper-division economics courses
- MATH 11 or 30

MATHEMATICAL ECONOMICS CONCENTRATION

Economics majors desiring a concentration in mathematical economics must complete the following requirements in addition to the regular requirements for the major:

- All of the following courses: MATH 11, 12, 13, 14, 22, 53 (MATH 122 and 123 strongly recommended)
- Three out of the following courses: ECON 170, 171, 172, or 174 (these courses also count as electives required for the major)

Note: Students completing the mathematical economics concentration take MATH 11 and 12 instead of MATH 30 and 31.

LOWER-DIVISION COURSES

1. Principles of Microeconomics

Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

1E. Principles of Microeconomics

Special section of ECON 1 emphasizing environmental applications of economics. Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

2. Principles of Macroeconomics

Determinants of national income and product in the long run and short run; inflation, unemployment, and business cycles; monetary and fiscal policies; and economic growth. *Prerequisite: ECON 1.* (4 units)

3. International Economics, Development, and Growth

Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. *Prerequisite: ECON 2.* (4 units)

3H. International Economics, Development, and Growth

Honors section. Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. *Must be in the University Honors or Leavey Scholars Program, or have permission of instructor. Prerequisite: ECON 2.* (4 units)

41. Data Analysis and Econometrics

Introduction to statistical methods for analyzing economic data. Emphasis on applications of multiple regression and establishing causality in observational data. *Prerequisites: ECON 1 and 2, MATH 11 or 30, and MATH 8 or OMIS 40 or equivalent; Economics majors only, or by permission of instructor. Must enroll simultaneously in ECON 42.* (4 units)

42. Data Analysis Applications

Hands-on course in obtaining and analyzing data using statistical software. *Prerequisites: ECON 1 and 2, MATH 11 or 30, and MATH 8 or OMIS 40 or equivalent; Economics majors only, or by permission of instructor. Must enroll simultaneously in ECON 41.* (2 units)

UPPER-DIVISION COURSES

Prerequisites: Unless otherwise noted, ECON 1, 2, and 3 are required for all upper-division economics courses.

101. Resources, Food, and the Environment

Exploration of the relationship among food production, resource use, and the environment. Topics include biotechnology, the green revolution, resource depletion, environmental degradation, and food safety. *Prerequisites: None.* (5 units)

111. Economics of the Environment

Economic analysis of environmental issues and government policies for environmental protection. Applications to important environmental issues, such as global climate change, water and air pollution, hazardous wastes, biodiversity, and endangered species. *Prerequisite: ECON 1.* (5 units)

113. Intermediate Microeconomics I

Theory of rational individual choice and its applications to decision making, consumer demand, and social welfare; economics of uncertainty and information. *Additional prerequisite: MATH 11 or 30.* (5 units)

114. Intermediate Microeconomics II

Theory of the firm; determination of price and quantity by profit-maximizing firms under different market structures; strategic behavior; general equilibrium; market failure and government policies. *Additional prerequisite: ECON 113, MATH 11 or 30.* (5 units)

115. Intermediate Macroeconomics

Macroeconomic analysis, emphasizing modern economic models for explaining output, employment, and inflation in the short and long run. Macroeconomic policymaking, including fiscal and monetary policy. *Additional prerequisite: MATH 11 or 30.* (5 units)

120. Economics of the Public Sector

Microeconomic analysis of the role of government in the market economy. Supply of public goods and services, government's role in controlling externalities and regulating private industry, and the economics of the political process. (5 units)

122. Money and Banking

Theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis on the relationship between the monetary and banking system and the rest of the economy. (5 units)

126. Economics and Law

Economic analysis of law and legal institutions focusing on the common law areas of property, contracts, and torts. (5 units)

129. Economic Development

Causes and consequences of economic growth and poverty in less developed countries; analysis of the role of government policies in economic development. (5 units)

134. African Economic Development

Examination of the economic development of sub-Saharan African countries, with particular emphasis on the relationships between economic growth and their social, political, and economic structures. (5 units)

135. Gender Issues in the Developing World

Explores the gendered nature of poverty in the developing world, with special focus on sub-Saharan Africa, using applied statistical analysis, and economic theory. *Also listed as WGST 121. Additional prerequisite: ECON 41 and 42 or OMIS 41 or permission of instructor.* (5 units)

136. 20th-Century Economic History

The development of the U.S. economy during the 20th century. Topics include the causes and consequences of economic growth, the Great Depression, the rise of government regulation, the changing role of women in the workforce, and the increasing internationalization of markets during the postwar period. *Additional prerequisite: ECON 115.* (5 units)

137. World Economic History

Development of Western and non-Western economies since the late 19th century. Topics include globalization and economic integration, convergence and divergence in economic growth across countries, international monetary systems, and the impact of alternative policies and institutional regimes on economic performance. (5 units)

138. History of Economic Thought

Origins and evolution of economic ideas in their historical and philosophical context. Emphasis on the theories of Adam Smith, David Ricardo, and Karl Marx, as well as the emergence of modern microeconomics and macroeconomics in the 19th and 20th centuries. (5 units)

139. American Economic History

Study of growth and institutional change in the U.S. economy since colonial times. Topics include early industrialization, the economics of slavery, and the rise of large business enterprises and labor unions. (5 units)

150. Labor Economics

Study of labor productivity, incomes and employment, and how these are affected by labor organizations and labor legislation. *Additional prerequisites: ECON 113 and OMIS 41 or ECON 41 and 42.* (5 units)

160. The Economics of Poverty and Inequality

Examines theories and evidence regarding poverty and economic inequality in the United States. Evaluates alternative public policies aimed at combating poverty. (5 units)

165. Economics and Justice

Study of theories of economic justice with applications to economic issues and policy. Alternative theories to be considered include utilitarian, libertarian, welfare-economic, egalitarian, feminist, and religious moral perspectives. Topics include poverty and income distribution; economic inequality and mobility by class, gender, and race; the role of the government in promoting justice; effects of globalization; and justice under different economic systems. *Additional prerequisite: ECON 113.* (5 units)

166. Race, Ethnicity, and Gender in the U.S. Economy

Analysis of current and historical differences in economic status by race, ethnicity, and gender; theory and evidence of discrimination; role of government policies. *Additional prerequisite: ECON 173 or ECON 41 and 42.* (5 units)

170. Mathematical Economics: Static Optimization

The standard classical models of microeconomic and macroeconomic theory are generalized and reformulated as mathematical systems. The primary goal of the course is to extract empirically testable propositions that would permit testing model veracity. Linear algebra and the tools of calculus including power series, the implicit function theorem, envelope theorems, and duality are used as the basis of analysis. *Additional prerequisites: MATH 11, 12, and ECON 113 or 114, or permission of instructor.* (5 units)

171. Mathematical Economics: Dynamic Optimization

The course will discuss the mathematical tools needed to analyze dynamic situations in economics. Applications to optimal decision-making over time with respect to natural resource allocations, manufacturing and storage paths, consumption/investment decisions, and stability of economic systems are discussed. Topics include optimal control, dynamic programming, and calculus of variations. *Additional prerequisites: MATH 11, 12, and ECON 113 or 114, or permission of instructor.* (5 units)

172. Game Theory

This course introduces game theoretical concepts and tools. Theoretical topics include Nash equilibrium, Sub-game perfection, Bayesian-Nash equilibrium, Harsanyi transformation, commitment, and Perfect Bayesian Equilibrium. Applications to topics such as oligopoly, strategic investment, and agency theory are discussed. *Additional prerequisites: MATH 11, 12, and ECON 113 or 114, or permission of instructor.* (5 units)

173. Applied Econometrics

Statistical analysis of cross-section and panel data, with economic applications. Topics include identification of causal effects using panel methods, instrumental variables, and quasi-experimental techniques; models with binary outcomes; variable selection. Hands-on analysis of data using statistical software. *Additional prerequisites: ECON 41, 42, 113, and 114.* (5 units)

174. Applied Time Series Analysis

Methods to forecast and interpret hypotheses about time-varying economic variables. Topics include stationary and non-stationary series; characterizing time series in tractable ways; separating regular (trend and seasonal) and irregular parts of a time series; and examining identification and estimation strategies. Synthesize, present, and evaluate time series analysis to assess credibility. *Additional prerequisites: ECON 173 or ECON 41 and 42 and ECON 115.* (5 units)

181. International Trade

Analysis of the theories of international trade and strategic interactions; assessment of the empirical patterns of trade; analysis of the political economy of protection, and applications to policies guiding international competition. *Additional prerequisite: ECON 113.* (5 units)

182. International Finance and Open Economy Macroeconomics

Analysis of the monetary aspects of international economics, including the balance of payments, exchange rates and foreign exchange markets, speculative attacks and currency crises, and the implications of international trade and capital flows for macroeconomic activity and policy. *Additional prerequisite: ECON 115.* (5 units)

185. Economics of Innovation and Intellectual Property

The economic determinants and consequences of innovation. Topics include research and development, joint ventures, patents and other intellectual property, university-industry and government-industry collaboration, and the relationship between antitrust and other regulatory policies and technological advances. *Additional prerequisite: ECON 114.* (5 units)

190. Economics Seminar

Seminar on contemporary economic theories and problems. *Admission by invitation only.* (5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisite: Written proposal must be approved by instructor and chair at least one week prior to registration.* (1–5 units)

DEPARTMENT OF FINANCE

Professors: Sanjiv Das (*William and Janice Terry Professor*), Hoje Jo (*Gerald and Bonita Wilkinson Professor*), Atulya Sarin, Hersh Shefrin (*Mario L. Belotti Professor*), Meir Statman (*Glenn Klimek Professor*)
Associate Professors: George Chacko (*Department Chair*), Robert Hendershott, Carrie Pan
Assistant Professors: Ye Cai, Seoyoung Kim, Samuel Lee
Professors of Practice: Sumit Agarwal, Donald Davis, Andy Kim, Wendy Ku, Joseph Ori, Steven Wade

Finance is at the center of well-managed businesses, from high-technology companies to mutual fund companies. Development of knowledge and managerial skills in the corporate and investment settings are the major goals of the finance program. Graduates with a degree in finance pursue careers as corporate financial officers, traders, investment managers, financial analysts, financial planners, investment bankers, stockbrokers, regulators, and other specialties. Corporate finance officers manage the assets and value of corporations. They examine which new products and investments will be profitable, analyze the most cost-effective ways to produce them, and determine where to get the money needed to fund new ventures. Personal financial planners and stockbrokers help people make wise investments by selecting good stocks and assembling efficient portfolios. Students in finance also learn how to understand and analyze information from capital markets, engage in mergers and acquisitions, and undertake investments in new ventures, real estate, and international markets.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum and Leavey School of Business requirements for the bachelor of science in commerce degree, students majoring in finance must complete the following departmental requirements:

- FNCE 124 and 125
- Four upper-division finance electives

UPPER-DIVISION COURSES

115. Quantitative Methods for Finance
Teaches finance majors the most important quantitative tools they will need for the finance curriculum. The students will (1) learn important concepts, techniques, and tools in mathematics and statistics relevant for modern finance; (2) understand where these tools are applied in practice; and (3) learn widely used software to implement these techniques. The goal of this course is to ensure that finance majors reach a baseline level of competence in quantitative methods, and is especially intended for those students who fear math yet have a desire to come to grips with it. *Prerequisites: ACTG 11 and 12 and OMIS 40.* (5 units)

116. Mathematical Finance
Introduction to Ito calculus and stochastic differential equations; discrete lattice models; models for the movement of stock and bond prices using Brownian motion and Poisson processes; pricing models for equity and bond options via Black-Scholes and its variants; optimal portfolio allocation. Solution techniques will include Monte Carlo and finite difference methods. Offered in alternate years. *Prerequisites: FNCE 115 and 121.* (5 units)

121. Financial Management

Introduction to the basic concepts of financial risk and return, the valuation of uncertain future cash flows, working capital and fixed asset management, and cost of capital. Topics include time value of money, financial analysis and forecasting, valuing corporate securities (stocks and bonds), cash management, capital budgeting, short- and long-term financing, and dividend policy. *Prerequisites: OMIS 40, ACTG 11 and 12, and proficiency with spreadsheets.* (5 units)

121S. Financial Management

Introduction to the basic concepts of financial risk and return, the valuation of uncertain future cash flows, working capital and fixed asset management, and cost of capital. Topics include time value of money, financial analysis and forecasting, valuing corporate securities (stocks and bonds), cash management, capital budgeting, short- and long-term financing, and dividend policy. *Prerequisites: Restricted to students in the Leavey Scholars Program. OMIS 40, ACTG 11 and 12, and proficiency with spreadsheets.* (5 units)

124. Investments

Introduction to the nature and functions of securities markets and financial instruments. The formulation of investment goals and policies, trading strategies, and portfolio management. Coverage of security analysis and valuation, evaluating portfolio performance, diversification, alternative investments. *Prerequisite: FNCE 121 or 121S.* (5 units)

125. Corporate Financial Policy

In-depth examination of the interrelationships between corporate investment and financing decisions and their impact on a firm's pattern of cash flows, return, and risk. Special emphasis on the development of analytical techniques and skills for analyzing performance reflected in financial statements. Case studies are used. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

126. Money and Capital Markets

Examines the role and function of financial institutions, financial flows, and interest rate structures in the money and capital markets. Viewed primarily from the perspective of a corporate issuer, explores the mechanisms by which value is created by financial markets, the roles of players in the system, the securities in each market, the flows of information, and the design and incentive features that manage risk in a practical manner. Common themes and concepts will be developed by the exploration of a new market in each class, examining issuer's funding alternatives, and incorporating current news events. *Prerequisites: FNCE 121 or 121S, FNCE 124, and FNCE 125.* (5 units)

128. Real Estate Finance

Exploration of the real estate market, including investments in residential and commercial real estate by individuals, partnerships, and trusts. Emphasis is on the valuation and cash flow analysis of these projects and an understanding of financing alternatives. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

130. Ethics in Finance

Exploration of the ethical dimension of financial markets. Topics include insider trading, moral hazard, agency, adverse selection, and financial market regulations concerning disclosure, price manipulation, suitability, trading interruptions, margin requirements, and short-sale restrictions. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

135. Applied Portfolio Management

Designed to provide a highly rigorous and analytic framework for applied work in investments and portfolio management. Students who master the course material will acquire the analytical tools and financial theory necessary to make rational investment decisions and understand the paradigms by which investment portfolios are managed. The coursework involves an analysis of contemporary theories and techniques in portfolio management available to professional portfolio managers. Significant literature that emphasizes the role of the modern portfolio manager in achieving diversification and client investment goals is reviewed and evaluated. *Prerequisites: FNCE 121 or 121S, 124, and OMIS 40 and 41.* (5 units)

141. New Venture Finance

Describes the financing environment for young companies and studies how the private equity market functions. Students will learn how investment funds are structured, investment contracts are written, and understand the economics of different private equity models work. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

143. Entrepreneurial Finance

Covers topics that are directly relevant to entrepreneurs, defined broadly to include all early employees in addition to founders, who are evaluating, communicating, and implementing new business opportunities. This course focuses on the start-up phase with an emphasis on venture-backed companies. The three main sections of the course are: Types of Businesses (primarily lecture and project-based), Financial Models (primarily project-based), and Investment Terms (primarily lecture-based). Types of Businesses covers the three types of entrepreneur: lifestyle entrepreneurs, wealth-building entrepreneurs, and innovating entrepreneurs, along economic foundations that distinguish the three types of entrepreneurship. Financial Models covers the creation and uses of financial projection: revenue, costs, and profits/losses. Investment Terms covers the way investments in start-up companies are generally structured. In all three sections, we will discuss the human biases that often distort entrepreneurial efforts, along with strategies to recognize and avoid the more costly. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

146. Introduction to Risk Management

Introduction to financial risk management through its major components: credit, market, operational, legal, and reputational. Also addresses technology tools to manage risk and the role data governance and environmental policy play in risk management. Students who master the material will acquire an understanding of the major areas of risk exposure that all organizations, both public and private, face in operating in today's complex global marketplace. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

148. Risk Management and Insurance

Survey of general principles of risk management. Risk management uses many tools to avoid, reduce, or offset the financial penalty of risks. The course will cover types of insurance, financial instruments used to "insure" a portfolio, credit default swaps, etc. The course will address the risk management function across the firm. The role of the chief financial officer (CFO) or vice president of finance as the risk management officer will be examined. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

151. International Finance

Examination of the functioning of the international monetary system, foreign exchange markets, and the financial problems of business firms operating internationally. Topics covered include hedging exchange rates and interest rates, international investment and financing, financial markets, banking, and financial management. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

163. Investment Practice

The practice of portfolio management using a portion of the University's endowment fund to acquire real-life investment experience. Various investment objectives will be explored, including derivatives to protect current positions, fixed income, and equity investments. The course meets over three quarters. Students must earn 6 units in order for the course to count toward the major. *Prerequisites: FNCE 121 or 121S, FNCE 124, and instructor approval.* (2 units)

170. Business Valuation

Practical valuation tools for valuing a company and its securities. Valuation techniques covered include discounted cash-flow analysis, estimated cost of capital (cost of equity, cost of debt, and weighted average cost of capital), market multiples, free-cash flow, and pro-forma models. *Prerequisites: FNCE 121 or 121S, and FNCE 124.* (5 units)

174. Mergers and Acquisitions

A study of corporate governance and corporate restructurings. Emphasis on how corporate ownership, control, and organizational structures affect firm value. Other topics may include valuing merger candidates, agency theory, and takeover regulation. This course generally places a heavy emphasis on case projects and/or class presentations. *Prerequisites: FNCE 121, 124, and 125.* (5 units)

180. Open Book Management

Open book management is a system that places finance and accounting at the center of management processes for decision making and monitoring. The course uses simulation techniques to teach students how to create a corporate culture around the principles of open book management, particularly the treatment of agency conflicts and the use of effective business processes. *Prerequisites: FNCE 121 or 121S, FNCE 124, and FNCE 125.* (5 units)

198. Internship/Practicum

Opportunity for selected upper-division students to work in companies and nonprofit organizations. *Prerequisites: Finance major, junior or senior standing, and permission of instructor and chair required one week prior to registration. Anything less than 5 units will not count toward major requirements.* (1–5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisites: Declared finance major, junior or senior standing, and a written proposal must be approved by instructor and chair one week prior to registration.* (1–5 units)

DEPARTMENT OF MANAGEMENT

Professor Emeritus: Dennis J. Moberg
Professors: Gregory Baker (*Naumes Family Professor*), David F. Caldwell (*Stephen and Patricia Schott Professor*), André L. Delbecq (*J. Thomas and Kathleen L. McCarthy University Professor*), Terri Griffith (*Department Chair*), James L. Koch (*Jan and Bill Terry Professor of Management*), Barry Z. Posner (*Michael Accolti, S.J. Professorship for Leadership*), Manuel G. Velasquez (*Charles J. Dirksen Professor of Business Ethics*)
Associate Professors: James L. Hall, Tammy L. Madsen, Jennifer Woolley
Assistant Professors: Robert Eberhart, Sanjay Jain, Peter Jennings, Kevyan Kashkooli, Nydia MacGregor
Lecturers: Sandy Piderit, Wan Yan

The Management Department's curriculum emphasizes rigorous analysis and managerial application. Courses are offered in organizational behavior, human resource management, managerial communication, team management, leadership, entrepreneurship, negotiation, and family business management. Additional courses in strategic management, business and public policy, business ethics, and international management provide a general management perspective. Management majors are those who want to develop balanced general management skills and/ or prepare for project management careers. Students in other majors who aspire to supervisory or managerial positions will find several of the department electives useful.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum and Leavey School of Business requirements for the bachelor of science in commerce degree, students majoring in management must complete the following departmental requirements:

- MGMT 174
- Four courses selected from MGMT, 164, 165, 166, 169, 170, 171, 172, 173, 175, 179, 197, 198, and 199

LOWER-DIVISION COURSES

6. Business Ethics

A normative inquiry into the ethical issues that arise in business and how they should be managed. Attention is given to current moral issues in business, to ethical theories and their implications for these issues, and to the managerial implications. Topics may include truth in advertising, corporate social responsibility, affirmative action, government regulation of business, quality of work-life, environmental and resource issues, and ethical codes of conduct. *Students who take PHIL 6 may not take this course for credit.* (4 units)

6H. Business Ethics

Honors section. A normative inquiry into the ethical issues that arise in business and how they should be managed. Attention is given to current moral issues in business, to ethical theories and their implications for these issues, and to the managerial implications. Topics may include truth in advertising, corporate social responsibility, affirmative action, government regulation of business, quality of work-life, environmental and resource issues, and ethical codes of conduct. *Students who take PHIL 6 may not take this course for credit. Prerequisite: Enrollment restricted to students in the University Honors or Leavey Scholars programs.* (4 units)

8. Business Ethics in Practice

This course provides students with hands-on experience in a nonprofit organization to prepare them for future work and service-based learning engagements. Students will work with, and observe, employees in a nonprofit organization to gain an understanding of the value of the organization's daily work activities and its contribution to society. The course will help students recognize the benefits of lifelong responsible citizenship and civic engagement. Students will participate in a minimum of two seven-hour Saturday assignment days and nine regular Tuesday/Thursday sessions. *Prerequisite: MGMT 6 or 6H or PHIL 6 or 112. Note: To participate in this experiential learning course, the student must have private transportation to travel to a construction site in Santa Clara County.* (2 units)

80. Global and Cultural Environment of Business

An examination of the basic conceptual vocabulary and theories regarding the economic, political, and social influences on international business today. Topics may include international trade, financial systems, political institutions, cultural factors, corporate structure, and market entry. Students who take this class may not receive credit for MGMT 80L taken in the Santa Clara London Program, or any equivalent course taken in a study abroad program. *Prerequisites: BUSN 70 or 170, and ECON 3.* (4 units)

UPPER-DIVISION COURSES

160. Management of Organizations

Introduction to organization theory and practice with an emphasis on organizational behavior, inclusive of the contexts of the individual, the group, and the organization as a whole. *Prerequisite: Students must have completed 60 units.* (5 units)

160S. Management of Organizations

Introduction to organization theory and practice with an emphasis on organizational behavior, inclusive of the contexts of the individual, the group, and the organization as a whole. *Prerequisites: Open only to students in the Leavey Scholars Program. Students must have completed 60 units.* (5 units)

162. Strategic Analysis—The Business Capstone

Focuses on the processes by which managers position their businesses or assets to maximize long-term profits in the face of uncertainty, rapid change, and competition. Covers various frameworks for analyzing an industry's structure and a firm's competitive position, and for developing a coherent, viable, and defensible firm strategy. Requires students to integrate and extend the knowledge and skills that they have developed throughout their coursework (i.e., marketing, finance, economics, organizational behavior, ethics, information systems, statistical analysis, operations management, accounting, etc.) into a "total" business perspective. *Prerequisites: ECON 41 and 42 or OMIS 41; FNCE 121 or 121S; MGMT 80, 160, or 160S; MKTG 181 or 181S; and senior standing.* (5 units)

162S. Strategic Analysis—The Business Capstone

Focuses on the processes by which managers position their businesses or assets to maximize long-term profits in the face of uncertainty, rapid change, and competition. Covers various frameworks for analyzing an industry's structure and a firm's competitive position and for developing a coherent, viable, and defensible firm strategy. Requires students to integrate and extend the knowledge and skills that they have developed throughout their coursework (i.e., marketing, finance, economics, organizational behavior, ethics, information systems, statistical analysis, operations management, accounting, etc.) into a "total" business perspective. *Enrollment restricted to students in the Leavey Scholars Program. Prerequisites: ECON 41 and 42 or OMIS 41; FNCE 121 or 121S; MGMT 80, 160, or 160S; MKTG 181 or 181S, senior standing, and a minimum 3.5 cumulative GPA.* (5 units)

164. Introduction to Entrepreneurship

The practice of business innovation and entrepreneurship with an emphasis on assessing needs, developing products or services, and communicating ideas. *Prerequisites: ACTG 11 and MKTG 181.* (5 units)

165. Building a Business

Extends notions of entrepreneurship to building a viable business by focusing on developing business plans and identifying opportunities for growth. *Prerequisite: MGMT 164.* (5 units)

166. Human Resource Management

Comprehensive review of the role and functions of human resource management departments in business organizations, with particular emphasis on selection and placement, training and development, and compensation systems. *Prerequisite: MGMT 160 or 160S, or permission of instructor.* (5 units)

169. Business and Public Policy

The impact of public policy on business and how businesses adapt to and influence public policies. Includes ideology, corporate social responsibility, government regulations, and business political activity. Lectures/discussions; case analyses. (5 units)

170. International Management

The international framework for trade and international investment, a critical discussion of the idea of globalization, the design and staffing of multinational organizational structures, and multinational strategies. *Prerequisite: MGMT 80. (MGMT 160 or 160S recommended.)* (5 units)

171. Managerial Communication

Interpersonal and small-group communication. Negotiating behavior. Oral and written communication. Integrates theory and skill-building through reading, case analysis, and practice. *Prerequisite: MGMT 160 or 160S, or permission of instructor.* (5 units)

172. Social Entrepreneurship

This course focuses on emerging models of enterprise at the interface of the public, private, and nonprofit sectors. It examines theories of change and the dynamics of social innovation and develops both conceptual and practical tools for creating high performance organizations that are capable of addressing seemingly intractable problems in a financially sustainable manner. Analysis of exemplary social business ventures, including alumni cases from the Global Social Benefit Incubator, will illustrate how the discipline of business planning can contribute the development of social ventures that are economically viable at scale. Students will apply this knowledge to the writing and analysis of a case on an actual social business. *Prerequisite: Students must have completed 87.5 units.* (5 units)

173. Resources, Food, and the Environment

Exploration of relationship among food production, resource use, and the environment. Topics include biotechnology, the green revolution, resource depletion, environmental degradation, and food safety. *Also listed as ECON 101.* (5 units)

174. Social Psychology of Leadership

A conceptual framework for understanding leadership and opportunities for developing leadership skills. This interactive course requires personal reflection into leadership experiences and fieldwork with executives. *Note: This course is required for those completing the Leadership Studies Certificate Program. Prerequisite: Students must have completed 87.5 units.* (5 units)

175. Managing Family Businesses

Issues include managerial and ownership succession, conflicts between family and nonfamily members, and conflicts between family and business cultures. Students will apply organizational behavior concepts to family business issues and develop a useful framework for analyzing and anticipating those issues. Class design incorporates cases, videos, and guest speakers. *Prerequisite: MGMT 160 or 160S.* (5 units)

179. Project Management

Students will learn how to plan and manage a project. The course covers methods for creating a work breakdown structure and project schedule; estimating a project's budget; and managing a project's quality, schedule, and financial targets. Course activities include a project management computer simulation, and a directed team project that connects the students with a practicing project manager for applying the methods learned. Much of the course materials will be the based on the Project Management Institute's (PMI) Body of Knowledge, which is used for PMI certification. This course can be a first step toward certification. *Prerequisite: MGMT 160 or 160S, or permission of the instructor.* (5 units)

197. Special Topics in Management

Offered occasionally to introduce new topics not covered by existing electives. Topics generally reflect the research interests of the faculty teaching the course. *Prerequisite: MGMT 160 or 160S.* (5 units)

198. Internship/Practicum

Opportunity for selected upper-division students to work in local organizations. *Prerequisites: MGMT 160 or 160S, and two courses from the following list: MGMT 166, 169, 170, 171, 172, 173, 174, 175, 177. Students must have completed 60 units and have the approval of the undergraduate committee one week prior to registration.* (1–5 units)

198E. Entrepreneurship Internship

An extended opportunity for students accepted into the entrepreneurship minor program to apply their entrepreneurial knowledge and skills in emerging or growing companies through a structured placement in Silicon Valley. *Prerequisites: MGMT 164 or BUSN 144 and must have a declared entrepreneurship minor. MGMT 165 may be taken concurrently.* (5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. *Prerequisites: MGMT 160 or 160S, and a written proposal must be approved by instructor and chair one week prior to registration.* (1–5 units)

DEPARTMENT OF MARKETING

Professor Emerita: Karen F. A. Fox
Professors: Dale D. Achabal (*L.J. Skaggs Professor, Department Co-Chair*), Albert V. Bruno (*W.T. Cleary Professor*), Kirthi Kalyanam (*J.C. Penney Professor*), Shelby H. McIntyre (*Department Co-Chair*), Edward F. McQuarrie
Associate Professors: Xiaojing Dong, J. Michael Munson
Assistant Professors: Desmond Lo, Kumar Sarangee, Savannah Wei Shi
Lecturer: Gail Kirby

Marketing operates at the cutting edge of a well-managed organization. Development of students' decision-making and managerial skills are the major objectives of the Department of Marketing program, with special emphases in innovation, high technology, retailing, and digital marketing. Marketing links a business to its markets and customers and acts as the eyes and the ears for a firm, helping managers identify emerging market opportunities and anticipating customer needs and wants. It is also the firm's voice, handling communications with customers and deciding on advertising, sales, and social media messages. Finally, strategic marketing addresses competitive threats and opportunities, guiding a firm's efforts to deliver superior value. Because customer analysis and competitive advantage are so crucial to business success, a degree in marketing provides a solid foundation for a general management career leading to executive responsibilities. It can also provide the basis for a more focused career in such areas as advertising, retailing, sales, brand management, and market research.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling Undergraduate Core Curriculum and Leavey School of Business requirements for the bachelor of science in commerce degree, students majoring in marketing must complete the following departmental requirements:

- MKTG 182 and 183 (to be completed early in junior year, prior to electives)
- After completion of MKTG 182 and 183, three courses in an area of marketing emphasis chosen from one of the following areas:

Business and Technology Marketing Emphasis

- MKTG 185, 187, 188 (strongly recommended)
- MKTG 175, 186 (recommended)

Consumer and Channel Marketing Emphasis

- MKTG 165, 175, 186 (strongly recommended)
- MKTG 176, 187 (recommended)

Individually Designed Marketing Emphasis

- Courses selected with the student's marketing faculty advisor. The three courses are typically selected from MKTG 165, 175, 176, 178, 185, 186, 187, and 188.

The MKTG 198 internship elective should be designed to augment the student's career goals. However, MKTG 198 cannot be substituted for an elective course in the major.

UPPER-DIVISION COURSES

165. Customer-Centric Retailing

The design and management of store, catalog, and Internet-based retail channels. Topics include how retailers create value for the producer and the end user, the financial and marketing strategies that underlie retailing formats, target marketing decisions, merchandise management, how retail price promotions work, managing customer service, and the execution of retail marketing decisions. Mini cases, video cases, an applied project, and guest speakers from industry will be utilized to provide practical illustration of various concepts and stimulate class discussion. *Prerequisites: ACTG 11 and MKTG 181 or 181S.* (5 units)

168. and 169. Advanced Retail Seminars

In-depth examination of a number of topics critical to future executives in a retailing environment. Focus is on the use of consumer information and information technology to improve managerial decision making. Topics include consumer trends, multichannel retail models, analysis of high-performance retailers, category management, building information-centric organizations, mobile marketing, social media, sales promotion and online advertising, and supply chain management. *Prerequisites: MKTG 165, 181, or 181S, and declared retail studies minor. MKTG 168 must be taken prior to 169.* (5 units)

175. Internet Marketing

Focuses on several important areas impacting the dynamic nature of Internet marketing by addressing these questions: What is the role of mobile, social, and local marketing in today's environment? How are marketers integrating e-commerce into their marketing activities? What are some of the major problems and opportunities that e-commerce activities pose for the marketing manager? Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

176. Services Marketing and Management

Effective marketing and management in service enterprises, including hospitality, tourism, financial services, retailing, health care, education, accounting, telecommunications, technical and information services, among others. Focus on customer satisfaction, service quality, service design and implementation, pricing, and promotion. Use of cases, field trips, and projects to develop and apply course concepts. *Prerequisite: MKTG 181 or 181S.* (5 units)

178. Marketing Across Cultures

Success in global markets requires developing marketing programs that are sensitive to cultural differences. This course emphasizes the cultural factors that drive consumption behavior in international markets. A sociocultural perspective is applied to traditional marketing concepts to develop programs to successfully address international markets. Mechanisms for participating in foreign markets such as exports, licensing, and joint ventures are evaluated. Ethical marketing issues in international contexts are explored. Students who take this class may not receive credit for MKTG 178L taken in the Santa Clara London Program, or any equivalent course taken in a study abroad program. *Prerequisites: MKTG 181 or 181S and MGMT 80.* (5 units)

181. Principles of Marketing

Introduction to the fundamental principles of contemporary marketing. Covers the role of marketing in society, marketing strategy and planning, segmentation, product policy, pricing decisions, promotion, and distribution. The course stresses topical examples. Emphasizes application of basic principles, information sourcing, analytical thinking, and communication skills. *Prerequisite: Must have 60 units or greater, or permission of instructor.* (5 units)

181S. Principles of Marketing

Introduction to the fundamental principles of contemporary marketing. Covers the role of marketing in society, marketing strategy and planning, segmentation, product policy, pricing decisions, promotion, and distribution. Stresses topical examples. Emphasizes application of basic principles, information sourcing, analytical thinking, and communication skills. *Prerequisite: Enrollment restricted to students in the Leavey Scholars Program. Must have 60 units or greater, or permission of instructor.* (5 units)

182. Analysis for Marketing Decisions

An analytical approach toward understanding consumers and markets to support profitable marketing decisions in such areas as market segmentation, new product development, positioning, and promotions. The focus is on frameworks for structuring marketing problems, and techniques for using data to improve marketing decisions. Cases and projects are emphasized. *Prerequisites: OMIS 41 or ECON 42 and MKTG 181 or 181S.* (5 units)

183. Customer Behavior

How consumers process information and make buying decisions. Investigation of influence factors, such as attitudes, personality, culture, motivation, perception, and reference groups on consumer decision making. Decision-making processes of industrial buyers in business-to-business markets are also studied and compared to those of individuals in consumer markets. Particular emphasis on understanding the decision-making process (both consumer and industrial) and its application to the development of sound marketing strategy. An applied project, videos, and mini-cases are used to illustrate the practical application of various concepts. *Prerequisites: OMIS 41 or ECON 42 and MKTG 181 or 181S or permission of instructor.* (5 units)

185. Sales Management

This course puts the student in the role of being a prospective sales or marketing manager. The objective is to provide students with user-level knowledge of sales concepts and management methodologies necessary to effectively perform and manage the sales function. The format of the course enables the student to apply these concepts to selling both consumer high-tech and industrial products and services. Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

186. Integrated Marketing Communications

Integration of the marketing mix, brand message, and media is essential to successfully meeting corporate objectives. The course arms students with an understanding of new media plus the skills to plan, develop, execute, coordinate, and measure integrated marketing communications (IMC) programs. Personal attributes, demeanor, and business ethics are addressed in preparation for moving from the classroom to the boardroom. Interaction with business practitioners, industry-experienced instruction, and a service/learning project for an actual company are integral to the course. *Prerequisite: MKTG 181 or 181S.* (5 units)

187. Innovation and New Product Marketing

Focuses on both quantitative and qualitative techniques associated with identifying, researching, and analyzing new product opportunities. Exposes students to important tools for designing, testing, and introducing profitable new products and services. *Prerequisite: MKTG 181 or 181S.* (5 units)

188. Business-to-Business Marketing

Studies the marketing of goods and services to business organizations. Topics include differences between B2B and B2C marketing, formulation of business marketing strategy, inter-firm relationship and contracting, and value creation and value capturing. Fosters an integrated approach to pricing, promotion, distribution, and communication. Class design combines theory and practice through online simulations, cases, group projects, and guest lectures. Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

189. Sustainability Marketing

The course is designed to explore the relationship between sustainability and marketing, especially for students interested in business and society and the environmental concerns that affect marketing managers. Key areas include understanding the economic foundation of sustainability marketing and its place in contemporary society, sustainability marketing standards and strategies, and global and ethical considerations. *Prerequisite: MKTG 181 or 181S.* (5 units)

197. Special Topics in Marketing

Occasional current and interdisciplinary courses offered on a one-time or infrequent basis or cross-listed with offerings in other departments. Consult quarterly schedule of classes for description. *Prerequisites: MKTG 181 or 181S and declared marketing major.* (5 units)

198. Internship

Opportunity for upper-division students to work in local firms and complete a supervised academic project in that setting. *Prerequisites: Declared marketing major, MKTG 181 or 181S, 182, and permission of faculty coordinator.* (1–3 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisite: Written proposal must be approved by instructor and chair at least two weeks prior to registration.* (1–5 units)

OPERATIONS MANAGEMENT AND INFORMATION SYSTEMS

Professors: Narendra Agrawal (*Benjamin and Mae Swigg Professor*), Manoochehr Ghiassi, Steven Nahmias, Stephen A. Smith, S. Andrew Starbird, Andy A. Tsay (*Department Chair*)
Associate Professor: Gangshu Cai
Assistant Professors: Ram Bala, Yasin Ceran, Tao Li, Haibing Lu, Sami Najafi-Asadolahi, Michael Schermann, David K. Zimbra
Lecturer: Foad Hassanmirzaei

Undergraduate study in the Department of Operations Management and Information Systems (OMIS) explores the use of computer information systems and analytical decision-making methods in organizations. Essential to the conduct of business, these skills equip the department's majors and minors to design, implement, and evaluate systems central to an organization's success.

In addition to the major in management information systems (MIS), the department offers an MIS minor for nonbusiness and non-MIS majors, and the inter-departmental major of accounting and information systems (AIS).

The department's majors and minors may pursue a variety of careers after graduation, including management consulting, systems administration, technical sales and marketing, operations management, and roles as business analysts in public, private, service, and nonprofit sectors. Past graduates have also gone on to various master's degree or doctoral programs, as well as law school.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling Undergraduate Core Curriculum and Leavey School of Business requirements for the bachelor of science in commerce degree, students majoring in management information systems or in accounting and information systems must complete the following departmental requirements:

Major in management information systems (MIS)

- OMIS 30 or 31
- OMIS 105, 106, and 107
- Three courses from OMIS 109, 110, 111, 112, 113, 117, 120, 135, 137, 150, 170, 173

Major in accounting and information systems (AIS)

- ACTG 20, 130, 131, 132, 135, 136, and 138
- OMIS 30 or 31
- OMIS 105, 106, and 150
- One course from OMIS 107, 111, 113, 120, 135, 137

REQUIREMENTS FOR THE MANAGEMENT INFORMATION SYSTEMS MINOR

Nonbusiness majors and non-MIS majors in the Leavey School of Business may pursue the MIS minor, enabling them to apply a deeper understanding of technology to their major.

The MIS minor has the following requirements:

- OMIS 30 or 31
- OMIS 105
- Three courses from OMIS 106, 107, 110, 111, 112, 113, 117, 120, 135, 137, 150, 170, 173, 199

Nonbusiness students minoring in MIS must also complete the following requirements:

- One course in mathematics from MATH 11 or 30
- One course in statistics and data analysis from OMIS 40, MATH 8, PSYC 40, COMM 110
- Three courses in business from BUSN 70, MGMT 160, MGMT 161, MKTG 181, FNCE 121, OMIS 108

LOWER-DIVISION COURSES

15. Introduction to Spreadsheets

Using spreadsheets to analyze business data and present the findings in tables, charts, and graphs. Topics covered will include spreadsheet formulas, functions, pivot tables, and pivot charts. Students will also learn how to retrieve data from sources such as text files, relational databases, and servers. *Students may not take both OMIS 15 and 17 for credit.* (2 units)

17. Introduction to Business Computing

Using spreadsheets and database management systems to analyze business data and present the findings in tables, charts, and graphs. Topics covered will include the spreadsheet formula, functions, pivot tables and charts, and SQL queries. Students will also learn the workings of the relational database management systems. *Students may not take both OMIS 15 and 17 for credit.* (4 units)

30. Introduction to Programming

Fundamental methodologies and approaches to computer programming, with emphasis on problem solving, top-down program design, and thinking like a programmer. Students will learn basic structures of computer programming; analyze real business problems from a computer programmer perspective; and program, test, and debug well-structured programs. Focuses on essential aspects of writing software that include good design, modularity, efficiency, documentation, clarity, portability, and style. Students will obtain hands-on programming skills through several programming assignments. This course is the basis for business application development in database design and systems programming courses. *Students who receive credit for CSCI 10 (formerly MATH 10), COEN 6, COEN 11, or OMIS 31 may not take this course for credit.* (4 units)

31. Business Applications Programming

Develop and implement business application programs using software tools such as Visual Studio, Visual Web Developer, and Dreamweaver. Students will develop both Windows and Web applications. Assignments will use programming frameworks such as .NET and PHP. *Students who take CSCI 10 (formerly MATH 10), OMIS 30, COEN 6, or COEN 11 may not take this course for credit.* (4 units)

34. Science, Information Technology, Business, and Society

Examines the complex relationship among science, information technology, business, and society. Investigates major breakthroughs in information technology, how they were influenced by business needs, and how they affect business and society. Explores social and cultural values in business science and technology, and economic challenges posed by rapid business information technology. Also examines the workings of major components of information technology used in business today. (4 units)

40. Statistics and Data Analysis I

First in a two-course sequence. Students learn to summarize and describe sets of data using numerical and graphical methods; to quantitatively express the probability of events and utilize probability rules; to employ probability distributions to describe the probabilities associated with discrete and continuous random variables, and to compute means and variances; to evaluate sample data collection plans for quantitative and qualitative data; and to construct interval estimates for the population mean. Students analyze real-world data using spreadsheet software. *Prerequisites: MATH 11 or 30, and OMIS 15 or 17.* (4 units)

41. Statistics and Data Analysis II

Second in a two-course sequence. Students learn to construct confidence intervals and test hypotheses about means, proportions, and variances for one and two populations; to formulate and test hypotheses about multinomial data; to construct both simple and multiple regression models, evaluate model quality and predict the value of dependent variables using regression. Students analyze real-world data using spreadsheet software. *Prerequisites: OMIS 15 or 17, and OMIS 40.* (4 units)

UPPER-DIVISION COURSES

105. Database Management Systems

This course presents issues related to databases and database management systems (DBMS). Students will acquire technical and managerial skills in planning, analysis, design, implementation, and maintenance of databases. Hands-on training in relational database design, normalization, SQL, and database implementation will be provided. Use of DBMS software is required. Emphasis is placed on the issues of managing a database environment. *Prerequisite: OMIS 30 or 31.* (5 units)

106. Systems Analysis and Design

This course presents methodologies and approaches to the analysis and design of computer-based information systems for business applications. Topics include the systems development lifecycle, development methodologies, requirements determination, use case analysis, process modeling, systems architecture, program, and interface design, systems implementation, and organizational transition. Application of the studied methodologies and techniques to a systems analysis and design project is required. *Prerequisite: OMIS 30 or 31.* (5 units)

107. Systems Programming

Discussion of the fundamental concepts of systems programming. Major focus on the overall structure and capabilities of modern operating systems (LINUX/UNIX, Windows, etc.) and how to use operating system facilities to manipulate files and processes. Also covers shells and scripting programming concepts for performing system-level programming assignments on dedicated computer systems. Development of several software assignments utilizing systems programming concepts is required. *Prerequisite: OMIS 30 or 31.* (5 units)

108. Operations Management

Survey of analysis and design methods for business systems that produce and deliver goods and services. Topics chosen from the following: process analysis, sales forecasting, production planning and scheduling, inventory management, material requirements planning, quality control, lean manufacturing, and supply chain management. *Prerequisite: OMIS 41 or ECON 41 and 42.* (5 units)

108E. Sustainable Operations Management

This version of OMIS 108 places emphasis on applications to sustainable business practices. Class project required. *Prerequisite: OMIS 41 or ECON 41 and 42.* (5 units)

108S. Operations Management

Enrollment in this version of OMIS 108 is restricted to students in the Leavey Scholars Program. *Prerequisite: OMIS 41 or ECON 41 and 42.* (5 units)

109. Computer Decision Models

Mathematical methods for solving decision problems encountered in business situations. Emphasis on problem formulation and application of spreadsheet-based algorithms for solution. Linear models and linear programming. Sensitivity analysis. Network models. Integer and nonlinear programming. Decision analysis and value of information. Dynamic analysis and the principle of optimality. *Prerequisite: OMIS 41 or ECON 41 and 42.* (5 units)

110. Computer Simulation Modeling

Examination of computer simulation modeling for the design and operation of complex processes or systems. Theory and techniques of simulation and simulation languages such as SLAM, GPSS, and GASP; inventory control; assembly and job-shop scheduling; and manufacturing process design. *Prerequisites: OMIS 41 or ECON 41 and 42 and OMIS 30, or OMIS 31.* (5 units)

111. Computer Communications Systems

Designed to provide the information systems professional with a basic literacy in communication technologies driving the digital economy. Basics of data and telecommunications, LANs, WANs, broadband, analog and digital communications, Internet architecture and concepts, wireless including cellular and WLANs, and market and regulatory issues are covered. Emphasis on being able to assess the business impact of networking technologies. *Prerequisite: OMIS 30, 31, or 34.* (5 units)

112. Artificial Intelligence and Expert Systems for Business

This course examines applications of artificial intelligence and expert systems for business. Topics include rule-based systems, data and Web mining, and other knowledge-based systems. *Prerequisite: OMIS 30 or 31.* (5 units)

113. Data Warehousing and Business Intelligence

This course examines a broad collection of software tools and analytical applications that allow enterprises to analyze data maintained in data warehouses and operational databases for business intelligence. Topics include data storage and data integration architecture, enterprise analytics, and business intelligence tools and presentations. Students will acquire hands-on experience in building business intelligence applications. *Prerequisites: OMIS 30 or 31, and OMIS 105.* (5 units)

117. Software Development Project

Integration of system and programming concepts to develop a comprehensive software system. Also presents an overview of software development methodology. *Prerequisite: OMIS 30 or 31.* (5 units)

120. Web Programming

The course will focus on the design and development of Web-based applications using a number of currently popular tools and strategies, and also explore the use of databases as data repositories for Web applications. Core technologies including HTML, CSS, XML, JavaScript, PHP, MySQL, and AJAX will be emphasized. *Prerequisites: OMIS 30 and 105.* (5 units)

135. Enterprise Resource Planning Systems

Study of data and process integration across a company onto a single computer system. Analysis of enterprise resource planning (ERP) system technologies, including databases. Class project requires setting up an ERP system module using Oracle and/or SAP systems. Case studies and guest speakers from industry. *Prerequisite: OMIS 105 or COEN 178.* (5 units)

137. Object-Oriented Programming

Introduction to object-oriented design methodology. Discussion of different programming paradigms, concepts of data abstraction, inheritance, and encapsulation. Topics include an overview of Java programming language, classes and objects, data abstraction, inheritance, I/O packages, exceptions, threads, and GUI. Development of several programming assignments using Java is required. *Prerequisite: OMIS 30, 31, or equivalent.* (5 units)

145. Competitive Quality

Slogans like "Quality is Job 1"; "When it absolutely, positively has to be there overnight"; and "The Dependability People" leave little doubt as to the importance of quality in commercial competition. This course explores how quality contributes to competitiveness. The course starts by defining quality and introducing methods for measuring quality. The course investigates variation in quality and its effect on firm performance, and studies methods for monitoring and controlling quality including quality control charts and sampling inspection. Finally, in light of new developments in operations theory and in technology for tracking and monitoring products, the course also tackles strategic supply chain issues associated with quality. Case studies and field trips are used to bolster student understanding. *Prerequisites: ECON 1 and OMIS 108/108E/108S.* (5 units)

150. Financial Information Systems

Course focuses on computer-based financial information systems that allow finance and accounting professionals to acquire and manage a company's financial system. Topics include the business functions of a financial information system, the technical aspects of the system, and the management issues of implementing such a system. Students will acquire hands-on experience using ERP systems. *Prerequisites: OMIS 30 or 31, and OMIS 105.* (5 units)

170. Physical Database Design

Methodology for design of physical file structures to support single- and multiple-file applications. Query optimization using indexes. Data structures, file structures, file access methods, file manipulation, and algorithmic analysis. *Prerequisite: OMIS 105.* (5 units)

173. E-commerce Technologies

An integrated course discussing techniques needed to build, operate, and maintain e-businesses. Topics include scripting languages, mark up languages, security, online transaction, and multimedia operation. *Prerequisite: OMIS 30 or 31.* (5 units)

198. Internship

Opportunity for selected upper-division students to work in local businesses or government units. Requires a faculty advisor and should be fairly well structured. *Note: A student cannot use a collection of internship courses to satisfy the upper-division course requirement for any of the OMIS department's major or minor programs. Prerequisites: Upper-division standing and approval of the undergraduate committee one week prior to registration. Written proposal must be approved by instructor and chair one week prior to registration.* (1–2 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty advisor. *Note: A student cannot use a collection of directed reading/directed research courses to satisfy the upper-division course requirement for any of the OMIS department's major or minor programs. Prerequisite: Upper-division standing and approval of the undergraduate committee one week prior to registration. Written proposal must be approved by instructor and chair one week prior to registration.* (1–5 units)

INTERDISCIPLINARY MINORS

ENTREPRENEURSHIP

Director: Daniel J. Aguiar

The entrepreneurship minor provides students who may be interested in either developing a business or working in a start-up company the chance to explore that career option and acquire the skills that can help them to be successful. Students completing the minor should develop an understanding of the venture creation process including how to generate and develop a new business concept, apply quantitative and qualitative methods and analytical tools to identify and evaluate entrepreneurial opportunities, use data and analysis to create and evaluate a business plan, and evaluate different funding sources for a new venture. A critical element of the program is an internship working with an emerging for-profit or socially beneficial organization to develop an in-depth case study of the firm and its founders.

The entrepreneurship minor is open to all students via an application process through the Center for Innovation and Entrepreneurship. F1/J1 visa international students are advised to consult with the Global Engagement Office prior to application due to the internship requirement. Accepted business school students can begin the minor after they have earned 60 units. For students outside the business school, prerequisites for the core courses should ideally be completed in the sophomore year.

REQUIREMENTS FOR THE MINOR

MGMT 164. Introduction to Entrepreneurship
MGMT 165. Building a New Business
MGMT 198E. Internship in Entrepreneurship

And two courses from the following list:

BUSN 197A/B. Business/Engineering Project Collaboration
ECON 129. Economic Development
ENGR 177. Cultures of Innovation
ENVS 145. Environmental Technology
ENVS 148. Solar Revolution
FNCE 141. New Venture Finance
FNCE 143. Entrepreneurial Finance
FNCE 170. Business Valuation
MECH 144. Smart Product Design (*co-requisite: MECH 144L lab*)
MGMT 172. Social Entrepreneurship or HRNS 120A. Entrepreneurship for Social Justice
MGMT 175. Managing Family Businesses
MGMT 197. Technology Entrepreneurship
MKTG 175. Internet Marketing
MKTG 182. Marketing Analysis
MKTG 187. Innovation and New Product Marketing
SOCI 150. Immigrant Businesses in the United States
SOCI 172. Management of Healthcare Organizations

INTERNATIONAL BUSINESS

Director: TBD

The minor in international business is designed to educate students in a broad range of management and business skills in a global context. The program includes coursework in language, social science, and international business and is open to all undergraduate students. The minor provides students with an understanding of the social, economic, and political context of international business, the language communication skills, and the business skills to be effective managers in a global marketplace. Students are encouraged to participate in a study abroad program or internship to complement this minor.

REQUIREMENTS FOR THE MINOR

Area Studies Emphasis

Students must complete the following requirements for a minor in international business:

Foreign Language

- One course from ARAB 23, CHIN 23, FREN 100, GERM 100, ITAL 100, JAPN 23, SPAN 23

Students who feel that they already have the required level of language competency must demonstrate such by completing one of the above (or a more advanced 100 or 101 level course). Other languages do not qualify.

Business Fundamentals

- ACTG 11, BUSN 70, ECON 1, ECON 2, ECON 3, and MGMT 80
- One course from MGMT 6, PHIL 6, or PHIL 112

World Geography or Social Science in a Global Context Cultures & Ideas 3

Students should note that some of the following courses may require prerequisites.

- Two approved Cultures & Ideas 3 courses in anthropology, history, political science, sociology, or two courses listed below, or a combination for a total of two courses in both groupings: ENVS 50, ECON 129, ECON 130, ECON 134, ECON 138, HIST 105, POLI 50, POLI 119, POLI 121, POLI 122, POLI 136, POLI 137, POLI 140, POLI 142, POLI 144, POLI 146, PSYC 162, SOCI 138. Also, other eligible selected comparative politics courses may be approved by the director of the international business minor program.

International Business

- Two upper-division courses from FNCE 151, MGMT 170, MKTG 178, ECON 181, ECON 182 (students should note that some of these courses may require prerequisites and may be offered only once per year.)

Recommended (but not required)

- Completion of advanced language courses
- Participation in study abroad programs: approved equivalent courses taken abroad may fulfill requirements of the minor
- Internship related to an international business career
- Additional coursework in economic development, modern history, and politics of selected world regions

RETAIL STUDIES

Director: Kirthi Kalyanam

Retailing is a dynamic and fast-paced industry and encompasses many functional areas. It demands a blend of analytical and creative skills. The minor in retail studies offered by the Retail Management Institute is an in-depth immersion experience that prepares students for a diverse set of leadership roles including e-commerce, buying, merchandising, planning and allocation, digital marketing, and supply chain management. The program is open to all University undergraduates. Students entering the retail studies minor continue to major in their field of interest and receive their bachelor's degree in that field.

Business majors get an opportunity to discover an exciting industry in which to build their passions. For many business majors, broad business theories develop deeper meaning as they are applied specifically and in an integrative manner to the retail industry. Innovations in Internet retailing and e-commerce provide great opportunities for MIS majors and students interested in computer science. Retailing is at the forefront of trends in digital and mobile marketing, and social media. This provides a fertile ground for arts and science students to leverage their unique background.

One of the most valuable and unique aspects of the retail studies minor is participation in an internship during the summer after the junior year. This immersion experience gives students insight into the retail industry and potential careers that are available. Students acquire experience through a full-time, 10-week paid or nonpaid internship at internationally recognized retailers such as the Gap, HUGO BOSS, Williams-Sonoma, Phillips-Van Heusen, and Nordstrom. A wide variety of internships meet diverse student interests and needs.

The minor is composed of a set of core courses. Students can select from the following options: (1) Multi-channel, (2) Internet Retailing/Digital Marketing or (3) Web Engineering option based on the interests of the individual student. The core courses include a foundational retailing class in the spring quarter of their junior year and a two-quarter advanced retail seminar in the fall and winter quarters of their senior year. The core classes cover topics such as digital marketing, branding, product development, category management, negotiation, social media business analytics, supply chain management, e-commerce, and pricing and promotion analysis.

Nonbusiness majors are encouraged to apply for admission to the program during their first or second year to allow time to integrate their course of study in retailing with the requirements in their major field. Business students who have completed the lower-division requirements can enter the program as late as their junior year. Students are admitted into the minor at the discretion of the Director based on multiple criteria including a minimum GPA of 3.0, proven analytical skills, and the ability to blend analytical and creative thinking.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in retail studies:

- COMM 20 or MGMT 171
- COMM 12 or OMIS 34, or SOCI 49/149
- ECON 1
- OMIS 40 or COMM 110 or PSYC 40, or MATH 8/123 or AMTH 108
- MKTG 181
- MKTG 165 (BUSN 70, followed by ACTG 11 and MKTG 181, are prerequisites to this class)
- Summer internship: BUSN 198 or other approved internship (such as retail-related internships completed for the major)
- MKTG 168 and 169

Students must select one of the following three options:

Multichannel Option

- OMIS 15 or 17 (this OMIS requirement cannot be waived)
- MGMT 160

Internet Retailing and Digital Marketing Option

- ARTS 74 or ARTS 174
- ARTS 75 or ARTS 175
- MKTG 175 or ARTS 177 or OMIS 111, or OMIS 113

Web Engineering Option

- COEN 161
- COEN 163
- COEN 162

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School of Engineering

Dean: M. Godfrey Mungal
Associate Dean for Undergraduate Studies: Ruth E. Davis
Associate Dean for Graduate Studies: Aleksandar Zecevic
Associate Dean for Research and Faculty Development: Christopher Kitts
Dean's Executive Professor: Radha Basu

The mission of the School of Engineering is to educate and serve students for the benefit of the Silicon Valley area, the state, the nation, and the world. The engineering school does this through academic programs that educate professional engineers who practice with competence, conscience, and compassion, through scholarly activities that create and disseminate new knowledge, and through service activities that benefit our various constituencies and humanity in general.

All courses offered through the School of Engineering are taught under tenets set forth in the Engineering Honor Code. The Engineering Honor Code is a long-standing Santa Clara tradition instituted at the request of students. The code states: "All students taking courses in the School of Engineering agree, individually and collectively, that they will not give or receive unpermitted aid in examinations or other coursework that is to be used by the instructor as the basis of grading." Students and teachers cooperate and share responsibilities under the code. Teachers are responsible for making clear what aid is permissible and for using procedures that minimize temptations to violate the code. Students are responsible for behaving honorably, for actively ensuring that others uphold the code, and for being responsive to violations.

UNDERGRADUATE DEGREES

The School of Engineering confers the degree of bachelor of science with majors in bioengineering, civil engineering, computer science and engineering, Web design and engineering, electrical engineering, general engineering, and mechanical engineering. The specialized bachelor of science programs in civil engineering, computer science and engineering, electrical engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET, and the bachelor of science program in computer science and engineering is also accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; phone: 410-347-7700. The bachelor of science programs in bioengineering, general engineering, and Web design and engineering are not accredited by ABET. The engineering school offers minors in engineering, computer science and engineering, electrical engineering, and mechanical engineering as well as an interdisciplinary minor in bioengineering. All of the undergraduate engineering programs require students to complete extensive course sequences in mathematics and natural science as well as engineering.

Success in completing these critical course sequences is highly dependent upon having the necessary technical background at each stage. Accordingly, prerequisites for all engineering courses are strictly enforced.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE

To qualify for the degree of bachelor of science in the School of Engineering, students must complete the minimum number of units specified for the particular major and satisfy the requirements of the Undergraduate Core Curriculum and the major. It is possible that one course can satisfy more than one of the core requirements for engineering students.

Undergraduate Core Curriculum

Critical Thinking & Writing

- One two-course sequence in composition: CTW 1 and 2

Advanced Writing

- ENGL 181, 182A, 182B

Religion, Theology & Culture 1, 2, and 3

- Three courses approved to satisfy the core requirements

Cultures & Ideas 1 and 2

- One course sequence from the approved list of Cultures & Ideas course sequences

Cultures & Ideas 3

- One course from the approved list

Mathematics and Natural Science

- Course requirements are specified in the respective major requirements

Second Language

- Recommended proficiency in one foreign language; requirement is satisfied by two years of high school study in a foreign language

Social Science

- One course from the approved list

Civic Engagement

The civic engagement requirement may be met by one of two options:

- One course from the approved list
- A combination of ENGR 1 and a senior design project

Ethics

- One course in general or applied ethics from the approved list

Diversity

- One course from the approved list

Arts

The arts requirement may be met by one of two options:

- One course from the approved list
- A combination of ENGL 181 and a senior design project

Science, Technology & Society

The Science, Technology & Society requirement may be met by one of two options:

- One course from the approved list
- A combination of ENGL 181 and a senior design project

Experiential Learning for Social Justice

- One course (or activity) approved to satisfy experiential learning

Pathways

- Three courses with a common theme approved for a declared Pathway; materials submitted from each of these courses ***and*** a Pathway Essay following the requirements specified in the Core Curriculum.

MINORS IN THE SCHOOL OF ENGINEERING

Minor in Aerospace Engineering

The Department of Mechanical Engineering offers a minor in aerospace engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the Mechanical Engineering section of this chapter.

Minor in Bioengineering

The Department of Bioengineering offers an interdisciplinary minor in bioengineering designed for students who are science majors in the College of Arts and Sciences, students completing prerequisites for medical school, and engineering majors. Requirements for this minor are outlined in the Interdisciplinary Minor section at the end of this chapter.

Minor in Computer Science and Engineering

The Department of Computer Engineering offers a minor in computer science and engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the Computer Engineering section of this chapter.

Minor in Electrical Engineering

The Department of Electrical Engineering offers a minor in electrical engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the Electrical Engineering section of this chapter.

Minor in Engineering

The School of Engineering offers a minor in general engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the General Engineering section of this chapter.

Minor in Mechanical Engineering

The Department of Mechanical Engineering offers a minor in mechanical engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the Mechanical Engineering section of this chapter.

CENTERS, INSTITUTES, AND SPECIAL PROGRAMS

Cooperative Education Program

The Cooperative Education Program integrates classroom work with practical experience by providing alternate or parallel periods of college education with periods of training in industry and government. The objective of the program is to provide students the opportunity to enhance their academic knowledge, to further their professional development, and to learn how to work effectively as individual contributors and group members. The industrial training is related to the student's field of study and often is diversified to afford a wide range of experience. To qualify for the program, undergraduate students must have completed at least 90 quarter units and have a grade point average of 2.5 or higher. Credits earned in the program may be used to meet undergraduate degree requirements.

Center for Nanostructures

The Center for Nanostructures uses state-of-the-art equipment to educate students and to advance the field of nanoscale science and technology. The mission of the center is to conduct, promote, and nurture nanoscale science and technology, interdisciplinary research, and education activities at the University, and to position the University as a national center of innovation in nanoscience education and nanostructures research. Ongoing research projects include On-Chip Interconnect Modeling, Carbon Nanotubes/Nanofibers, and Electrical/Biological System Interfaces. Faculty, graduate students, and undergraduate students utilize the center for research projects.

Frugal Innovation Lab

Sponsored by the School of Engineering, the Frugal Innovation Lab (FIL) offers an interdisciplinary platform for the design and implementation of innovative technology for social benefit by fostering collaboration between students and faculty from universities worldwide, multinational corporations, social enterprises, non-profits, and foundations. Through undergraduate and graduate courses, innovation projects, and immersion experiences, SCU students have the opportunity to develop technologies, products and solutions to address real-world human needs in underserved markets domestically and internationally. Focus areas include clean energy, global public health, mobile technologies, sustainable livelihood development, and clean water.

Combined Bachelor of Science and Master of Science

Bachelor of science degree programs offered by the Departments of Bioengineering, Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering can be combined with master of science degrees. Requirements for the combined degree programs are outlined in the appropriate departmental sections of this chapter.

DEPARTMENT OF APPLIED MATHEMATICS

Senior Lecturer: Stephen A. Chiappari (*Department Chair*)
Lecturer: Aaron Melman

The Department of Applied Mathematics offers only graduate degree programs and operates in a service mode at the undergraduate level. Undergraduate courses offered by the department have been designed to bridge mathematical theory and engineering applications.

UPPER-DIVISION COURSES

106. Differential Equations

First-order linear differential equations, systems of linear differential equations, homogeneous systems of linear differential equations with constant coefficients, the Laplace transform, the solution of differential equations by Laplace transform. *Prerequisite: MATH 14.* (4 units)

108. Probability and Statistics

Definitions of probability, sets, sample spaces, conditional and total probability, random variables, distributions, functions of random variables, sampling, estimation of parameters, testing hypotheses. *Prerequisite: MATH 14.* (4 units)

112. Risk Analysis in Civil Engineering

Set theory and probability, random variables, conditional and total probability, functions of random variables, probabilistic models for engineering analysis, statistical inference, hypothesis testing. *Prerequisites: MATH 14 and at least junior standing.* (4 units)

118. Numerical Methods

Numerical solution of algebraic and transcendental equations, numerical differentiation and integration, and solution of ordinary differential equations. Solution of representative problems on the digital computer. *Prerequisites: AMTH 106 or MATH 22, and one of the following: COEN 11, 44, 45, or CSCI 10.* (4 units)

194. Peer Educator in Applied Mathematics

Peer educators in applied mathematics work closely with a faculty member to help students understand course material, think more deeply about course material, benefit from collaborative learning, feel less anxious about testing situations, and enjoy learning. *Prerequisite: Enrollment by permission of the instructor.* (2 units)

DEPARTMENT OF BIOENGINEERING

Professor: Yuling Yan (*Department Chair*)
Associate Professor: Jonathan Zhang
Assistant Professors: Prashanth Asuri, Emre Araci Ismail, Unyoung (Ashley) Kim, Biao (Bill) Lu

Bioengineering is the fastest-growing segment of engineering today and holds the promise of improving the lives of all people in very direct and diverse ways. Bioengineering focuses on the application of electrical, chemical, mechanical, and other engineering principles to understand, modify, or control biological systems, and educates students to solve problems at the interface of engineering and the life sciences.

The major in bioengineering is designed to prepare students for careers in the medical device and biotechnology industries, graduate study in bioengineering, or entry into medical school.

The bioengineering (or biomedical engineering) minor is primarily designed for those students who are interested in the field but are majoring in other disciplines. Particularly, science majors, students completing prerequisites for medical school as part of their undergraduate degree, or engineering majors.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in bioengineering must complete a minimum of 191 units and the following requirements (together with associated labs):

English

- ENGL 181, 182A, 182B

Bioethics

- One course selected from BIOE 180, PHIL 7, TESP 157, ENGR 19, or BIOL 171

Natural Science

Biomolecular track:

- BIOL 21, 24, 25; CHEM 11, 12, 13, 31, 32; PHYS 31, 32, 33

Medical-device track:

- BIOE 21, 22; CHEM 11, 12, 13, 31; PHYS 31, 32, 33

Pre-med track:

- BIOL 21, 24, 25; CHEM 11, 12, 13, 31, 32, 33; PHYS 31, 32, 33

Mathematics

- MATH 11, 12, 13, 14; AMTH 106, AMTH 108 (or BIOE 120)

Engineering

- ENGR 1, ELEN 50, COEN 45 (or 44), BIOE 10

Medical-device track:

- ELEN 21, MECH 10
- BIOE 153, 154, 155, 161, 162, 171, 172

Biomolecular track/Pre-med track:

- One course from ELEN 21 and MECH 10
- Two courses from BIOE 153, 154 and 155
- BIOE 162, 163, 175, 176 (*for Biomolecular track*)
- BIOE 162, 163 (or 161), 171 (or BIOL 124), 172 (*for Pre-med track*)

Senior Design Project (6 units in an interdisciplinary design project)

- BIOE 194, 195, 196

Technical Elective (TE) Requirements:

- The following minimum number of TE units are required for each track: Medical-device track: 15 units; Biomolecular track: 16 units; Pre-med track: 10 units

Recommended Technical Electives for Medical-device Track:

- BIOE 100, 107, 108, 140, 157, 163, 167, 168, 173, 174, 175, 176, 178, 179, 180, 185, 186, 192; COEN 123; ELEN 110, 115, 116, 130, 152, 156, 160; MECH 121, 123, 151; PHYS 161

Recommended Technical Electives for Biomolecular Track:

- BIOE 100, 108, 140, 157, 161, 168, 171, 172, 173, 174, 177L, 178, 179, 180, 185, 186, 192; one course from BIOE 153, 154, 155 that is not counted as a required course; BIOL 110, 122, 124, 174, 175, 176, 177, 178, 189; CHEM 33, 101, 111, 141, 142, 143, 150, 151, 152; PHYS 161

Recommended Technical Electives for Pre-med Track:

- BIOE 100, 107, 108, 140, 157, 163 (or 161), 168, 173, 174, 175, 176, 178, 179, 180, 185, 186, 192; one course from BIOE 153, 154, 155 that is not counted as a required course; BIOL 104, 110, 122, 174, 175, 176, 177, 178, 189; CHEM 101, 111, 141, 142, 143, 150, 151, 152; PHYS 161

BIOENGINEERING MINOR

An interdisciplinary minor in bioengineering is available. For details, see the Interdisciplinary Minor section at the end of this chapter.

BIOENGINEERING LABORATORIES

The *Bio-imaging/Image and Signal Analysis Laboratory* carries out basic and translational research on voice. Current research in the laboratory includes the development of imaging modalities to study laryngeal dynamics and function, and novel approaches for image/biosignal-based analysis and assessment of voice pathologies. The lab also supports the development of new detection and analytical methods using optical probes for applications in high-contrast fluorescence imaging in cells and tissues.

The *Biological Micro/Nanosystems Laboratory* supports research and teaching activities in the broad areas of microfluidics/biosensing. Utilizing microfluidic technologies, spectroscopy, and microfabrication techniques, we develop innovative microfluidic platforms for applications in basic biology, diagnostics, and cellular engineering.

The *Biomaterials Engineering Laboratory* focuses on the use of hydrogels to develop *in vitro* platforms that explore the role of *in vivo* like microenvironmental cues on controlling protein structure and function and regulating cell fate. The lab also supports the design and characterization of biomaterial nanocomposites for applications in tissue engineering.

The *Biomolecular Engineering Laboratory* conducts "bioengineering towards therapy." The idea is to engineer novel materials (particularly proteins and peptides) and devices and apply them to study basic biological and medical questions that ultimately lead to drug discovery and disease diagnosis.

The *Biosignals Laboratory* provides a full range of measurement and analysis capabilities including electrocardiography (ECG), electroencephalography (EEG), and electromyography (EMG) measurement system, vocal signal recording, and analysis software.

The *Tissue Engineering Laboratory* supports research and teaching activities related to mammalian cell and tissue culture. Activities include but are not limited to 2D and 3D mammalian cell culture, investigation of the role of biophysical cues on cancer cell migration and response to drugs, and genetic manipulation of mammalian cells.

LOWER-DIVISION COURSES: BIOENGINEERING

10. Introduction to Bioengineering

An introduction to the central topics of bioengineering, including the application of engineering methods and science to problems in biology and medicine, and the integration of engineering and biology. Current issues and opportunities in the field will be discussed. Course may include lectures, class discussions, guest lectures, field trips, short lab exercises, and team projects. (4 units)

21. Introduction to Physiology

This course will cover five anatomical systems and how the structure of the human body relates to and defines its function in maintaining homeostasis. This course will introduce cytology, histology and also focus on diseases related to the skeletal, nervous, sensory, muscular, endocrine, and reproductive systems. (4 units)

22. Introduction to Cell and Molecular Bioengineering

The aim of this course is to introduce students to fundamental concepts in cell and molecular biology. Topics covered in the course will include cellular structure and function, biological molecules, molecular mechanism of cellular function, cell proliferation and signaling. This course will also emphasize the importance of applications of genetic engineering in human health and diseases. Course will include lectures, peer reviewed papers, class discussion, short lab exercises, and team projects. *Prerequisite: BIOE 21.* (4 units)

22L. Laboratory for BIOE 22

Co-requisite: BIOE 22. (1 unit)

UPPER-DIVISION COURSES: BIOENGINEERING

100. Bioengineering Research Seminar

A series of one-hour seminars will be presented by guest professors and researchers on their particular research topics in bioengineering or related fields. Students are required to attend four to five seminars and submit a one-page report summarizing the presentation for each seminar. May be repeated for credits. P/NP grading. (1 unit)

107. Medical Device Product Development

The purpose of this course is to provide background information and knowledge to start or enhance a career in medical device product development. Discusses medical device examples, product development processes, regulation, industry information, and intellectual property. *Also listed as EMGT 307. Prerequisite: BIOE 10.* (2 units)

108. Biomedical Devices: Role of Polymers

This course is designed to highlight the role that polymers play in the design and fabrication of various medical devices ranging from simple intravenous drip systems to complex cardiac defibrillator implants and transcatheter heart valves. Topics include polymer basics, biocompatibility, biodegradation, and other tangentially related topics such as regulatory body approvals and intellectual property. *Prerequisites: BIOE 10 and CHEM 13. Also listed as BIOE 208.* (2 units)

120. Experimental Methods in Bioengineering

This course will cover the principles of data representation, analysis, and experimental designs in bioreactors, biomaterials, and medical devices. Topics include error analyses, modeling, normality testing, hypothesis testing, and design of experiments. Special emphases will be placed on the interpretation of data from high-throughput assays used in "omics"/tissue engineering, and formulation designs used for optimal drug delivery. *Prerequisite: MATH 14.* (4 units)

140. Biomaterials Engineering and Characterization

This course will cover the fundamental principles of soft biomaterials characterization in terms of mechanical and rheological properties related to biocompatibility. Areas of focus in the lab include study and fabrication of implantable hydrogels for eukaryotic cell immobilization in scaffolds and microcapsules, cytotoxicity measurements in the engineered micro-environment, and nutrient diffusion visualized by fluorescence microscopy. *Also listed as BIOE 240. Prerequisite: CHEM 13.* (2 units)

140L. Laboratory for BIOE 140

Co-requisite: BIOE 140. (1 unit)

153. Biomaterials Science

An introduction into materials used for medical devices. Focus areas include materials science, biology, biochemistry, practical aspects of biomaterials, industry literature, and applications. *Prerequisite: CHEM 13.* (4 units)

154. Introduction to Biomechanics

Engineering mechanics and applications in the analysis of human body movement, function, and injury. Review of issues related to designing devices for use in, or around, the human body including safety, biocompatibility, ethics, and Food and Drug Administration (FDA) regulations. *Prerequisites: BIOE 10, PHYS 33.* (4 units)

155. Biological Transport Phenomena

The transport of mass, momentum, and energy are critical to the function of living systems and the design of medical devices. This course develops and applies scaling laws and the methods of continuum mechanics to biological transport phenomena over a range of length and time scales. *Prerequisites: BIOE 10, PHYS 33, AMTH 106.* (4 units)

157. Introduction to Biofuel Engineering

This course will cover the basic principles used to classify and evaluate biofuels in terms of thermodynamic and economic efficiencies as well as environmental impact for resource recovery. Special emphases will be placed on emerging applications namely microbial fuel cell technology and photo-bioreactors. *Prerequisites: BIOE 21 or BIOL 21, CHEM 13, PHYS 33. Also listed as BIOE 257/ENGR 257.* (2 units)

161. Bioinstrumentation

Transducers and biosensors from traditional to nanotechnology; bioelectronics and measurement system design; interface between biological system and instrumentation; data analysis; clinical safety. Laboratory component will include traditional clinical measurements and design and test of a measurement system with appropriate transducers. *Also listed as ELEN 161. Prerequisites: BIOE 10, BIOE 21 (or BIOL 21), ELEN 50.* (4 units)

161L. Laboratory for BIOE 161

Co-requisite: BIOE 161. (1 unit)

162. Biosignals and Systems

Origin and characteristics of bioelectric, bio-optical, and bioacoustic signals generated from biological systems. Behavior and response of biological systems to stimulation. Acquisition and interpretation of signals. Signal processing methods include FFT spectral analysis and time-frequency analysis. Laboratory component will include modeling of signal generation and analysis of signals such as electrocardiogram (ECG), electromyogram (EMG), and vocal sound pressure waveforms. *Also listed as ELEN 162. Prerequisites: BIOE 10, PHYS 33, AMTH 106.* (4 units)

162L. Laboratory for BIOE 162

Co-requisite: BIOE 162. (1 unit)

163. Bio-Device Engineering

This course will instruct students with the fundamental principles of bio-device design, fabrication and biocompatibility, and let students experiment with the state-of-the-art bio-devices. Students will gain the hands-on experience with these bio-instruments which are also used in the field. Emphasis is given to the cutting-edge applications in biomedical diagnostics and pharmaceutical drug discovery and development, particularly detection and monitoring interaction, and activity of biomolecules, such as enzymes, receptors, antibody, nucleic acids, and bioanalytes. *Prerequisites: BIOL 25 or BIOE 22 and CHEM 31.* (4 units)

163L. Laboratory for BIOE 163

Co-requisite: BIOE 163. (1 unit)

167. Medical Imaging Systems

Overview of medical imaging systems including sensors and electrical interfaces for date acquisition, mathematical models of the relationship of structural and physiological information to senor measurements, resolution and accuracy limits based on the acquisition system parameters, impact of the imaging system on the volume being imaged, data measured, and conversion process from electronic signals to image synthesis. Analysis of the specification and interaction of the functional units of imaging systems and the expected performance. Focus on MRI, CT, ultrasound, PET, and impedance imaging. *Also listed as ELEN 167. Prerequisites: BIOE 162/ELEN 162 or ELEN 110 or MECH 142.* (4 units)

168. Biophotonics and Bioimaging

This course focuses on the interactions of light with biological matter and includes topics on the absorption of light by biomolecules, cells, and tissues, and the emission of light from these molecules via fluorescence and phosphorescence. The course will cover the application of biophotonics in cell biology, biotechnology, and biomedical imaging. *Also listed as BIOE 268. Prerequisites: BIOE 22 and CHEM 31 (or BIOL 25), PHYS 33.* (2 units)

171. Physiology and Anatomy for Engineers

Examines the structure and function of the human body and the mechanisms for maintaining homeostasis. The course will provide a molecular-level understanding of human anatomy and physiology in select organ systems. The course will include lectures, class discussions, case studies, computer simulations, field trips, lab exercises, and team projects. *Prerequisite: BIOE 21 (or BIOL 21).* (4 units)

171L. Laboratory for BOIE 171

Co-requisite: BIOE 171. (1 unit)

172. Tissue Engineering I

Introduces the basic principles underlying the design and engineering of functional biological substitutes to restore tissue function. Cell sourcing, manipulation of cell fate, biomaterial properties and cell-material interactions, and specific biochemical and biophysical cues presented by the extracellular matrix will be discussed, as well as the current status and future possibilities in the development of biological substitutes for various tissue types. *Prerequisite: BIOE 22 (or BIOL 25).* (4 units)

173. Tissue Engineering II

This course will provide a detailed overview of the progress achieved in developing tissue engineering therapies for a wide variety of human diseases and disorders. Course material will be organized into two sections. The first section will provide a basic overview of in vivo tissue growth and development, tools and materials needed to design tissues and organs, stem cell biology, and other emerging technologies. This basic section will be complemented by the second section, which will include a series of recent examples in applying tissue engineering to various organ systems. *Prerequisite: BIOE 172.* (4 units)

174. Microfabrication and Microfluidics for Bioengineering Applications

Focuses on those aspects of micro/nanofabrication that are best suited to BioMEMS and microfluidics to better understand and manipulate biological molecules and cells. The course aims to introduce students to state-of-art applications in biological and biomedical research through lectures and discussion of current literature. A team design project that stresses interdisciplinary communication and problem solving is one of the course requirements. *Prerequisites: BIOE 10, BIOE 21 (or BIOL 21).* (4 units)

174L. Laboratory for BIOE 174

Co-requisite: BIOE 174. (1 unit)

175. Biomolecular and Cellular Engineering I

This course will focus on solving problems encountered in the design and manufacturing of biopharmaceutical products, including antibiotics, antibodies, protein drugs, and molecular biosensors, with particular emphasis on the principle and application of protein engineering and reprogramming cellular metabolic networks. *Prerequisites: BIOL 25 or BIOE 22 and CHEM 31, or equivalent knowledge and by instructor's permission. BIOE 153 is recommended.* (4 units)

175L. Laboratory for BIOE 175

Co-requisite: BIOE 175. (1 unit)

176. Biomolecular and Cellular Engineering II

This course will focus on the principle of designing, manufacturing synthetic materials and their biomedical and pharmaceutical applications. Emphasis of this class will be given to chemically synthetic materials, such as polymers, and inorganic and organic compounds. *Prerequisites: BIOL 25 or BIOE 22 and CHEM 31, or equivalent knowledge and by instructor's permission. BIOE 171 and 175 are recommended.* (4 units)

177L. Advanced Molecular Bioengineering Lab

Prerequisite: BIOE 176. (1 unit)

178. Clinical Biomaterials

The objective of this course is to study the state-of-the-art of biomaterials currently used in medical devices. The course is taught as a series of semi-independent modules on each class of biomaterial, each with examples of medical applications. Students will explore the research, commercial, and regulatory literature. In teams of two to four, students will prepare and orally present a design study for a solution to a medical problem requiring one or more biomaterials, covering alternatives and selection criteria, manufacture and usability of the proposed medical device, and economic, regulatory, legal, and ethical aspects. Students should be familiar with or be prepared to learn medical, anatomical, and physiological terminology. Written assignments are an annotated bibliography on the topic of the design study and an individually written section of the team's report. Material from lectures and student presentations will be covered on a midterm quiz and a final examination. *Also listed as BIOE 278 and MECH 256. Prerequisite: BIOE 153 (or with consent of the instructor).* (2 units)

179. Physiology and Disease Biology I

This course will provide a molecular-level understanding of human physiology and disease biology, and an overview of cardiovascular disease, diagnostic methods, and treatment strategies. Engineering principles to evaluate the performance of cardiovascular devices and the efficacy of treatment strategies will also be discussed. This course includes lectures, class discussions, case studies, and team projects. *Prerequisites: BIOE 21 (or BIOL 21). BIOE 171 recommended. Also listed as BIOE 275.* (2 units)

180. Clinical Trials: Design, Analysis and Ethical Issues

This course will cover the principles behind the logistics of design and analysis of clinical trials from statistical and ethical perspectives. Topics include methods used for quantification of treatment effect(s) and associated bias interpretation, crossover designs used in randomized clinical trials, and clinical equipoise. *Also listed as BIOE 380. Prerequisites: BIOE 10, AMTH 108 or BIOE 120 (or with consent of the instructor).* (4 units)

185. Physiology and Disease Biology II

This course will provide a molecular-level understanding of physiology and disease biology, an overview of gastrointestinal diseases, and an introduction to medical devices used in diagnosis and treatment, as well as challenges in this field. This course will include lectures, class discussions, case studies, and team projects. *Prerequisite: BIOE 21 (or BIOL 21). BIOE 171 recommended. Also listed as BIOE 285.* (2 units)

186. Current and Emerging Techniques in Molecular Bioengineering

This course is designed to introduce basic and practical biotechniques to students with minimum training and background in biomolecular engineering. The basic principles and concepts of modern biotechniques will be illustrated and highlighted by studying real cases in lectures. *Prerequisite: BIOE 22 or BIOL 24. Also listed as BIOE 286.* (2 units)

192. Junior Design

Establishes a foundation for the Senior Design sequence. Students will be given a broad overview of the possible project offerings and will be directed to meet potential project advisors to learn more about their research and previous senior design projects. As a part of this course, students will also be introduced to the necessary soft skills (e.g., literature review, documentation, market research, experimental design, etc.) as they develop feasible senior design concepts. *Prerequisite: Junior standing.* P/NP grading. (1 unit)

194. Design Project I

Specification of an engineering project, selected with the mutual agreement of the student and the project advisor. Complete initial design with sufficient detail to estimate the effectiveness of the project. Initial draft of the project report. *Prerequisite: Senior standing.* (2 units)

195. Design Project II

Continued design and construction of the project, system, or device. Second draft of the project report. *Prerequisite: BIOE 194.* (2 units)

196. Design Project III

Continued design and construction of the project, system, or device. Final project report. *Prerequisite: BIOE 195.* (2 units)

198. Internship

Directed internship in local bioengineering and biotech companies or research in off-campus programs under the guidance of research scientists or faculty advisors. Required to submit a professional research report. *Open to upper-division students.* (Variable units)

199. Supervised Independent Research

By arrangement. *Faculty advisor required.* (1–4 units)

DEPARTMENT OF CIVIL ENGINEERING

Professor Emeritus: E. John Finnemore
Professors: Mark A. Aschheim (*Peter Canisius S.J. Professor and Department Chair*), Reynaud L. Serrette, Sukhmander Singh (*Wilmot J. Nicholson Family Professor*)
Associate Professors: Steven C. Chiesa, Rong He, Edwin Maurer (*Robert W. Peters Professor*)
Assistant Professor: Hisham Said
Lecturer: Tonya Nilsson

Civil engineers are responsible for designing, building, and sustaining the infrastructure on which society relies and that shapes our physical surroundings. Consequently, the Department of Civil Engineering offers a well-balanced undergraduate program that develops graduates capable of solving complex problems with fixed and often limited resources. The application of state-of-the-art skills, a sound understanding of engineering principles, the ability to communicate and articulate ideas, and preparation for lifelong learning are some of the key areas of focus in the civil engineering curriculum. At the completion of the undergraduate program, graduates are well equipped to enter the practice or pursue advanced studies in any of the civil engineering disciplines. The department provides students with the necessary guidance to develop their full potential within the context of their own personal experiences, the expectations of the profession, and societal needs. As graduates of the civil engineering program, engineers plan, design, construct, operate, and maintain the infrastructure that is critical to daily life, including buildings, transportation systems, airports, irrigation systems, water supplies, supply systems, and environmental protection facilities.

The Department of Civil Engineering works with its advisory board and other key constituencies to produce the set of program educational objectives shown below. Specifically, the department has committed itself to providing a program that produces graduates who, within five years of graduation, will:

- Capably design, build, maintain, or improve civil engineering-based systems in the context of environmental, economic, and societal requirements.
- Serve the community as ethical and responsible professionals.
- Engage in lifelong learning for professional growth.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of science degree, students majoring in civil engineering must complete a minimum of 196 units and the following department requirements:

English

- ENGL 181, 182A, 182B (or approved equivalent)

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 106 (or MATH 22) and AMTH 112 (or AMTH 108)
- CHEM 11, 11L
- PHYS 31, 31L, 32, 32L, 33, 33L
- CENG 20, 20L

Engineering

- ENGR 1
- ELEN 50, 50L
- CENG 7, 7L, 10, 10L, 15, 15L, 41, 44A, 44AL, 44B, 115, 115L, 121A, 121AL, 121B, 125, 125L, 128, 132, 140, 140L, 141, 143, 143L, 145, 148, 148L, 192A, 192C, 193, 194, and either 160 or 192D

Electives

Four technical electives from those listed below, with at least two design-focused electives and at least one analysis-focused elective:

- Design-focused electives: CENG 119, 133, 134, 135 & 135L, 136, 137, 138, 142, 144 & 144L, 146, 147, 150
- Analysis-focused electives: CENG 118, 123 & 123L, 139, 149, 151, 160, 161, 162, 163, 184, 186, 187, 192D
- One free elective (4 units)

The technical electives should be selected in consultation with an academic advisor to satisfy the requirements of the general civil engineering program or one of the approved emphasis area programs in civil engineering. The program requires that students take either CENG 160 or CENG 192D; whichever course is *not* taken to satisfy this requirement may be taken as a technical elective.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Civil Engineering offers a combined degree program leading to a bachelor of science and a master of science. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for a bachelor's degree and typically completes the requirements for a master of science in civil engineering within a year of completing the bachelor's degree.

Undergraduate students admitted to the combined degree program are required to enroll in the program between February of their junior year and December of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn a master's degree, students must fulfill all requirements for the degree, including the completion of 45 units of coursework beyond that applied to the bachelor's degree. The program of studies for the master's degree may include up to 20 units taken while enrolled as an undergraduate student; however, no individual course can be used to satisfy requirements for both the bachelor's degree and master's degree.

CIVIL ENGINEERING LABORATORIES

The *Simulation and Design Laboratory* maintains Windows-based personal computers (PCs) that are used in course assignments and design projects. Commercial software packages in all the major areas of civil engineering are available on the systems with user documentation available to students.

The *Concrete Testing Laboratory* contains facilities for mixing, casting, curing, and testing concrete cylinders and constructing reinforced-concrete test specimens.

The *Environmental Laboratory* is equipped with instrumentation needed for basic chemical and biological characterization of water, wastewater, and air samples as well as several pilot-scale treatment systems.

The *Geology Laboratory* is equipped with extensive rock and mineral samples as well as topographic, geologic, and soil maps.

The *Hydraulics Laboratory* is shared with the Department of Mechanical Engineering and contains a tilting flume that can be fitted with various open-channel fixtures.

The *Soil Mechanics Laboratory* contains equipment for testing soils in shear, consolidation, and compaction; equipment for other physical and chemical tests; field testing and sampling equipment; and a complete cyclic triaxial testing system with computer controls used for both research and instructional purposes.

The *Structures and Materials Testing Laboratory* is equipped with three universal testing machines and an interim high-bay structural test system. These machines/systems are used for testing a variety of construction materials and assemblies under quasi-static and pseudo-dynamic loading. Complementing this equipment are a series of digital and analog instruments, and high-speed data acquisition and control systems.

The offsite *Structural Laboratory Annex* is a high-bay test facility equipped with a closed-loop hydraulic system, modern data acquisition and control system, dedicated frames for beam and columns tests, and instrumentation for displacement, pressure, strain, temperature, and acceleration measurements. The *Annex* has the capability to test unique building components that incorporate walls/frames and floor systems with heights up to 8.0 meters.

The *Surveying Laboratory* has a wide variety of equipment including automatic levels, digital theodolites, total stations, and GPS-based surveying instruments available for instructional purposes.

LOWER-DIVISION COURSES

5. Project Impacts on the Community and the Environment

Introduction to the decision-making concepts that determine the feasibility of a project. Aspects of project planning, evaluation, and implementation. Identification of impacts on the community and the environment. (4 units)

7. Graphic Communication

Introduction to technical drawing including isometric and multiview drawings, use of sectional views and dimensioning, understanding blueprints and scales. *Co-requisite: CENG 7L.* (3 units)

7L. Graphic Communication Laboratory

Freehand drawing, manual and computer-aided drafting of physical models, construction of models from drawings. *Co-requisite: CENG 7.* (1 unit)

10. Surveying

The use and care of survey instruments. Principles of topographic mapping, linear measurements, leveling, traverses, curves, boundary, and public surveys. *Co-requisite: CENG 10L.* (3 units)

10L. Surveying Laboratory

Field work using common surveying instrumentation and equipment. *Co-requisite: CENG 10.* (1 unit)

15. Computer Applications in Civil Engineering

Solution techniques for civil engineering problems using common computer software. Introduction to matrix analysis, graphical and numerical solution methods, regression analysis, and linear optimization using some of the basic features in spreadsheet and math analysis programs to aid engineering solutions. Introduction to Visual Basic programming. A paper and presentation on an analytical topic developed with analytical tools used in the course. *Co-requisites: CENG 15L and 41.* (2 units)

15L. Computer Applications in Civil Engineering Laboratory

Hands-on work using analytical tools contained in common software programs to solve problems, and written and oral communication of solutions. *Co-requisite: CENG 15.* (1 unit)

20. Geology

Development and formation of geologic materials. Significance of structure, land form, erosion, deposition. Stream and shoreline processes. Surface water. *Co-requisite: CENG 20L.* (3 units)

20L. Geology Laboratory

Co-requisite: CENG 20. (1 unit)

41. Mechanics I: Statics

Resolution and composition of force systems and equilibrium of force systems acting on structures and mechanisms. Distributed forces. Friction. Moments of inertia. *Prerequisite: PHYS 31.* (4 units)

42. Mechanics II: Dynamics

Dynamics of a particle. Work and energy methods. Momentum methods. Kinetics of systems of particles. *Prerequisite: CENG 41.* (3 units)

43. Mechanics III: Strength of Materials

Analysis of stresses and strains in machines and structural members. Fundamental study of the behavior and response of statically determinate and indeterminate structural members subjected to axial, torsional, flexural, shear, and combined stresses. Introduction to the stability of columns. *Prerequisite: CENG 41. Co-requisite: CENG 43L.* (4 units)

43L. Mechanics III: Strength of Materials Laboratory

Co-requisite: CENG 43. (1 unit)

44A. Strength of Materials I

Analysis of stresses and strains in structural members. Fundamental study of the behavior and response of statically determinate structural members subjected to axial, torsional, flexural, shear and combined stresses. Stress transformation, principal stresses, and Mohr's circle. *Prerequisite: CENG 41. Co-requisite: CENG 44AL.* (3 units)

44AL. Strength of Materials Lab

Co-requisite: CENG 44A. (1 unit)

44B. Strength of Materials II

Continuation of topics covered in 44A. Shear flow and shear center. Indeterminate systems. Introduction to plastic behavior and column stability. *Prerequisite: CENG 44A.* (2 units)

UPPER-DIVISION COURSES

115. Civil Engineering Materials

Common civil engineering materials, focusing on steel, concrete, and wood, and touching on asphalt and epoxy. Structure and properties of materials, their production processes, and experimental methods used for determining their key properties. Sustainability implications of materials choices. *Prerequisites: CHEM 11 and CENG 43. Co-requisite: CENG 115L.* (4 units)

115L. Civil Engineering Materials Laboratory

Co-requisite: CENG 115. (1 unit)

118. Construction Engineering

Introduction to construction roles and responsibilities, construction project phases, building systems, bidding and cost estimating, resource utilization, planning and scheduling, project documentation, and safety and quality management. *Also listed as CENG 218. Prerequisite: Junior standing.* (3 units)

119. Design for Sustainable Construction

Design strategies for sustainable commercial and residential construction. Use of LEED criteria for assessing sustainable construction. Team-based project planning, design, and construction. Economic evaluation of sustainable technologies. Prefabrication. Overall project management. *Also listed as CENG 219. Prerequisite: Junior standing.* (4 units)

121A. Geotechnical Engineering

Origin, development, and properties of soils. Classification of soils and applications of engineering mechanics to soils as an engineering material. Water in soils. Soil-testing methods. Compaction, stabilization, consolidation, shear strength, and slope stability. *Prerequisites: CENG 20 and 44A. Co-requisite: CENG 121AL.* (3 units)

121AL. Geotechnical Engineering Laboratory

Application of soil testing methods. *Co-requisite: CENG 121.* (1 unit)

121B. Geotechnical Engineering

Theory and basic factors related to earth pressure, slope stability, and foundations. *Prerequisite: CENG 121A.* (2 units)

123. Environmental Reaction Engineering

Reaction stoichiometry and kinetics. Reactions of environmental significance. Dynamic and equilibrium system modeling. Reactor configurations and their effects on extent of the reaction. *Prerequisites: CHEM 11 or equivalent, AMTH 106, and junior standing. Co-requisite: CENG 123L.* (3 units)

123L. Environmental Reaction Engineering Laboratory

Co-requisite: CENG 123. (1 unit)

124. Water Law and Policy

Introduction to the legal and regulatory concepts related to water. Examines rights, policies, and laws, including issues related to water supply and access (water transfers/water markets, riparian and appropriative doctrines), flood control, water pollution and quality (the Clean Water Act, EPA standards, in stream flows for fish), and on-site storm water management/flood control. A focus on California water law and policy is complemented with some national and international case studies. *Also listed as CENG 258 and ENVS 124.* (4 units)

125. Municipal Engineering Design

Various aspects of civil engineering as applied in municipal (public works) design practice. Maps and plats; site layout and earthworks; drainage; streets and utilities. *Prerequisites: CENG 10 and 15. Co-requisite: CENG 125L.* (3 units)

125L. Municipal Engineering Design Laboratory

Co-requisite: CENG 125. (1 unit)

128. Engineering Economics and Business

Time value of money. Economic analysis of engineering projects, planning and capital budgeting, rate-of-return analysis, depreciation, cash-flow analysis, organizational behavior, business organization forms, design of organizational structures, financial analysis and management. *Prerequisite: Junior standing.* (3 units)

132. Structural Analysis

Loads and their distribution in structures. Analysis of statically determinate and indeterminate beams, trusses, and frames. Influence lines for beams and trusses. Analysis of statically indeterminate structures. Modeling and analysis of structures using commercial software programs. A team-based structural analysis project and presentation. *Prerequisite: CENG 44A. Co-requisite: CENG 44B.* (4 units)

133. Timber Design

Timber structural systems. Design of structural members for tension, compression, bending, and shear. Introduction to shear wall and diaphragm design. Connection and hardware design and specification. Design project. *Also listed as CENG 233. Prerequisite: CENG 148.* (4 units)

134. Structural Steel Design I

Design of steel members for tension, flexure, shear, compression, and combined loading. Design of composite floor beams. Introduction to connection design. *Prerequisite: CENG 148.* (4 units)

135. Reinforced Concrete Design

Design of one-way slabs, tee beams, and doubly-reinforced beams for flexure and shear; moment coefficient method; deflection estimates; longitudinal bar cutoffs and detailing; biaxial bending and slender columns; introduction to pre-stressed concrete. *Prerequisite: CENG 148. Co-requisite: CENG 135L.* (4 units)

135L. Reinforced Concrete Laboratory

Experimental tests of reinforced concrete building components; problem solving and review sessions; field trip(s). *Co-requisite: CENG 135.* (1 unit)

136. Advanced Concrete Structures

Confinement, moment-curvature and shear-displacement response; modeling; design and detailing of special moment frames, shear walls, and diaphragms; two-way slabs and pre-stressed concrete slabs. *Also listed as CENG 236. Prerequisite: CENG 135 or consent of instructor.* (4 units)

137. Earthquake Engineering Design

Introduction to seismic sources, wave propagation, and effects on structures. Spectral representations of demands. Design according to current code provisions and using simplified pushover methods. *Also listed as CENG 237. Prerequisite: CENG 148.* (4 units)

138. Geotechnical Engineering Design

Foundation exploration; bearing capacity and settlement analysis; spread foundations; piles and caissons; earth-retaining structures; loads on underground conduits; subsurface construction. *Also listed as CENG 238. Prerequisites: CENG 121.* (4 units)

138L. Geotechnical Engineering Design Laboratory

Structural design of footings, piles, and retaining walls. *Also listed as CENG 238L. Prerequisite: CENG 148. Co-requisite: CENG 138.* (1 unit)

139. Groundwater Hydrology

Groundwater occurrence, flow principles, flow to wells, and regional flow. Ground water contamination, management, and modeling. Field methods. Field trips. *Also listed as CENG 269. Prerequisite: CENG 141.* (3 units)

140. Water Resources Engineering

Concepts, analysis, and engineering design related to water resources: hydrologic cycle, evaporation, infiltration, precipitation, snow, flood frequency, water supply, and runoff management. Impacts of development, land use, and climate changes on water supply, and the importance of these changes to society. *Prerequisite: CENG 141 or permission of instructor. Co-requisite: CENG 140L.* (4 units)

140L. Water Resources Engineering Laboratory

Computational exercises for water resources analysis, field trips demonstrating hydrologic monitoring systems and complex regional water management systems. *Co-requisite: CENG 140.* (1 unit)

141. Fluid Mechanics and Hydraulic Engineering

Fundamentals of fluid behavior with an emphasis on water. Covers basic fluid properties, flow classification, and fluid statics including forces on submerged surfaces. Introduces and applies fundamental relationships: conservation of mass, momentum, and energy. Hydraulic applications include flow in pipes and pipe networks, steady flow in open channels, and hydraulic machinery. Laboratory. *Prerequisites: CENG 41, PHYS 31. Co-requisite: CENG 141L.* (4 units)

141L. Fluid Mechanics and Hydraulic Engineering Laboratory

Experiments demonstrating the principles of fluid flow and hydraulics for flow in pipes and in open channels. Use of modern data acquisition and writing of formal lab reports. *Co-requisite: CENG 141.* (1 unit)

142. Water Resources Design

Design of system components for water supply and flood control projects including storage facilities, closed conduits, open channels, well fields, and pumping systems. *Also listed as CENG 242. Prerequisite: CENG 140.* (4 units)

143. Environmental Engineering

Water and air quality. Water supply and pollution control; air pollution control. Management of solid wastes. *Prerequisites: CHEM 11, MATH 12, and junior standing. Co-requisite: CENG 143L.* (3 units)

143L. Environmental Engineering Laboratory

Laboratory analysis of aqueous samples and ideal reactor systems. Analysis of non-point pollution prevention strategies. Solid waste characterization. *Co-requisite: CENG 143.* (1 unit)

144. Environmental Systems Design

Design of treatment and distribution systems for potable water. Design of collection and treatment systems for water pollution control and wastewater reclamation. *Prerequisites: CENG 141 and 143. Co-requisite: CENG 144L.* (3 units)

144L. Environmental Systems Design Laboratory

Use of commercial software packages to design elements of potable water and wastewater management systems. Oral presentations. *Co-requisite: CENG 144.* (1 unit)

145. Transportation Engineering Design

Transportation systems analysis. Dynamics and traffic flow. Highway geometric design, traffic control, transportation planning. Transportation policies and economics. *Prerequisites: CENG 10 and junior standing.* (4 units)

146. Design of Cold-Formed Steel Frame Structures

Introduction to the fundamentals of cold-formed steel frame construction. Current design and construction practice. Practical design of members for tension, compression, shear, and torsion. Connection detailing. *Also listed as CENG 246. Prerequisite: CENG 148.* (4 units)

147. Pavement Design

Paving materials. Geometric and structural design of highways. Urban street layout and details. Layout and design of airport runways. *Also listed as CENG 247. Prerequisites: CENG 115 and 121.* (4 units)

148. Structural Systems

Structural performance requirements and structural systems; load sources, combinations, and load paths; accommodation of fire, sound, thermal, and mechanical requirements on structural systems; allowable stress and ultimate strength design philosophies; introduction to design of steel and reinforced concrete beams and columns. *Prerequisite: CENG 132. Co-requisite: CENG 148L.* (4 units)

148L. Structural Systems Laboratory

Simulation and modeling of structural system behavior. Structural drawings/schematics. *Co-requisite: CENG 148.* (1 unit)

149. Civil Systems Engineering

Introduction to engineering systems analysis and management technologies and their applications to civil engineering problems such as transportation, assignment, critical path, and maximum flow problems. Topics include linear programming, nonlinear programming, probability, and queuing theory, as well as relevant applications to civil engineering problems. *Also listed as CENG 249. Prerequisites: MATH 13 and junior standing.* (4 units)

150. Traffic Engineering: Design and Operations

Basic characteristics of motor vehicle traffic, highway and intersection capacity, applications of traffic control devices, traffic data studies, signal design, and traffic safety. *Also listed as CENG 250. Prerequisite: CENG 145.* (4 units)

151. Special Topics in Transportation Engineering

Coverage of special topics in transportation engineering including dynamic traffic flow forecasting, analysis and application of traffic flow patterns, and static and dynamic traffic analysis and modeling for short-term and long-term planning and optimization. *Also listed as CENG 251. Prerequisite: CENG 145.* (4 units)

160. GIS in Water Resources

Introduction to Geographical Information Systems (GIS) technology with applications in watershed analysis and hydrology. Obtaining and processing digital information for watersheds, mapping terrain, spatial analysis, computing river networks from digital elevation models, and preparing data for hydrologic modeling for water supply and flood studies. *Also listed as CENG 260. Prerequisites: Junior standing and experience with Windows directory and file management.* (3 units)

161. Sustainable Water Resources

Analysis and design of water resource systems, from flood control projects to drinking water supply, as environmental constraints and societal values shift. Includes sustainable and low-impact design techniques, climate change impacts on water, assessing sustainability, life-cycle economics, and current topics. *Also listed as CENG 261. Prerequisite: CENG 140 or permission of instructor.* (3 units)

162. Computational Water Resources

Use of professional applications software to design and evaluate facility components and systems for water resources engineering projects. *Also listed as CENG 262. Prerequisites: CENG 140, which may be taken concurrently.* (3 units)

163. Solid Waste Management

Characterization of solid waste streams. Overview of collection, transport, processing, and disposal options. Waste stream reduction and resource recovery strategies. *Also listed as CENG 263.* (4 units)

184. Construction and Contract Administration

Project stakeholders authorities, project organization, compensation schemes, bidding, contracts, quality control, preconstruction operations, project documentation, electronic administration, labor laws and relations, safety, risk and liability sharing, payments and change orders, schedule delay analysis, claims, and disputes, project closeout. *Also listed as CENG 284. Prerequisite: Junior standing.* (3 units)

186. Construction Planning and Control

Work breakdown structure; work sequencing and logic; activity duration estimates; schedule network representations; critical path method; resources loading, allocation, and leveling; planning of repetitive tasks; cost estimates; time-cost tradeoffs; project cash flow analysis; and time-cost control. Use of commercial scheduling software. Group project on construction planning. *Also listed as CENG 286. Prerequisite: Junior standing. Co-requisite: CENG 186L* (3 units)

186L. Construction Planning and Control Laboratory

Also listed as CENG 286L. Co-requisite: CENG 186. (1 unit)

187. Construction Operations and Equipment

Earthmoving with dozers, scrappers, and excavators; hauling, compacting, and finishing. Piling, lifting; concrete operations, asphalt paving, equipment economics, operations planning using computer simulation, and discrete-event simulation. Group project on construction operations analysis. *Also listed as CENG 287. Prerequisite: Junior standing. Co-requisite: CENG 187.* (3 units)

187L. Construction Operations and Equipment Laboratory

Also listed as CENG 287L. Co-requisite: CENG 187. (1 unit)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Letter grades based on content and presentation quality of report. *Prerequisite: Approval of department co-op advisor required.* (2 units)

192A. Elements of Civil Engineering Practice

Applications of engineering techniques and procedures to civil engineering design. Preliminary design studies, evaluation of alternatives, and cost estimates. Responsibilities of design consultant; project management and leadership. Environmental impact assessment. Selection and conceptual design of Senior Design Project (CENG 193 and 194). *Prerequisite: Senior standing.* (2 units)

192C. Development of Construction Drawings

Content and organization of construction drawings. Advanced computer-aided design (CAD) techniques. Role of drawings and written specifications. *Prerequisites: CENG 7. Co-requisite: CENG 193.* (2 units)

192D. Introduction to Building Information Modeling

Parametric design and modeling, BIM-based scheduling and estimating, model checking and validation, 4D visualization, green building design, applications in integrated project delivery and facilities management, Interoperability, standardization, and Web-based collaboration. *Also listed as CENG 292. Prerequisites: CENG 192C.* (3 units)

193. Senior Design Project I

Investigation of an approved civil engineering project. The design process—including problem formulation, analysis, preliminary design, final design, and plans—is completed. Formal public presentation of results. *Prerequisites: CENG 192A and ENGL 181.* (4 units)

194. Senior Design Project II

Continuation of the senior project. Formal public presentation of the results. *Prerequisite: CENG 193.* (1 unit)

197. Special Topics in Civil Engineering

Subjects of current interest. May be taken more than once if topics differ. (1–4 units)

198. Internship

Time off campus with an engineering organization. Different aspects of work in the assigned professional office. Oral and written reports. *Prerequisites: Senior standing and approval of internship coordinator.* (4–5 units)

199. Directed Research

Investigation of an approved engineering problem and preparation of a suitable project report. Conferences with faculty advisor are required. *Prerequisite: Junior standing.* (1–5 units)

DEPARTMENT OF COMPUTER ENGINEERING

Professors: Ruth E. Davis (*Lee and Seymour Graff Professor*), Nam Ling (*Sanfilippo Family Professor and Department Chair*)
Associate Professors: Ahmed Amer, Darren Atkinson, Ronald L. Danielson, Silvia Figueira, JoAnne Holliday, Daniel W. Lewis, Weijia Shang
Assistant Professors: Yi Fang, Yuhong Liu, Ben Steichen
Lecturer: Rani Mikkilineni

The Department of Computer Engineering offers major programs leading to the bachelor of science in computer engineering or computer science and engineering, or the bachelor of science in Web design and engineering. The computer science and engineering program features a balanced core in which each student studies the engineering aspects of software and hardware as well as the mathematical foundations of computation. Computer science and engineering electives permit students to build on this core with varying emphasis, depending on their interests. The Web design and engineering program combines a technical education in computing with courses in graphic art, communication, and sociology to enable its graduates to understand the engineering infrastructure of the Web, how the Web affects society, and how the ways in which society uses the Web create new demands on technology. Instruction and research in the department's programs are supported by the facilities of the Engineering Design Center and the University's Information Technology Center.

REQUIREMENTS FOR THE MAJORS

Bachelor of Science in Computer Engineering or in Computer Science and Engineering

In the following, the program, which is identical for both titles, is referred to as "computer science and engineering." In addition to fulfilling the Undergraduate Core Curriculum requirements for a bachelor of science degree in the engineering school, students majoring in computer science and engineering must complete a minimum of 189 units and the following departmental requirements (together with associated labs):

English

- ENGL 181, 182A, 182B

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 106 (or MATH 22) or an advisor-approved mathematics or natural science elective*
- AMTH 108 (or MATH 122)
- MATH 53 or CSCI 166 or AMTH 118
- CHEM 11 or an advisor-approved natural science elective*
- PHYS 31, 32, 33

* Pre-approved replacements for CHEM 11: BIOL 18, CHEM 1, ENVS 21, and PHYS 34; pre-approved substitutions for AMTH 106: CHEM 12, BIOL 21, MATH 101–178, or any CHEM 11 replacement (if not used to replace CHEM 11).

Engineering

- ENGR 1
- ELEN 50, 153
- COEN 10 (or demonstrated equivalent programming proficiency)
- COEN 11, 12, 19, 20, 21, 70, 122, 146, 171, 174, 175, 177, 179
- COEN 194 (or ENGR 194), COEN 195 (or ENGR 195), COEN 196 (or ENGR 196)

Computer Science and Engineering Electives

Three upper-division courses selected from COEN 100–180, ELEN 115, 133, and 134 in an emphasis area selected in consultation with an academic advisor. 6 units of COEN 193 or 4 units of COEN 199 may be used as one elective.

Educational Enrichment Electives

An educational enrichment experience selected from one of the following options:

- 8 or more units in a study abroad program that does not duplicate other coursework
- Cooperative education experience with enrollment in COEN 188 and 189
- Admission to one of the department's master's degree programs and completion of at least the first 12 units of that program prior to completion of the undergraduate degree
- Undergraduate research with completion of 6 or more units of COEN 193 (cannot also be used to satisfy a COEN elective)
- 12 or more units selected in consultation with an academic advisor. The courses may not also be used to satisfy Undergraduate Core Curriculum requirements, but a minor or second major may be used to complete this option.

Concentrations

Students majoring in computer science and engineering may complete one of three concentrations with certification by the department and on the student's transcript.

Concentration in Information Assurance

This concentration was developed from the standards of the Committee on National Security Systems and the National Security Agency have certified that Santa Clara University's program in Information Assurance has been reviewed by the National Level Information Assurance Subject Matter Experts and has been determined to meet the National Training Standard for Information Systems Security Professionals, NSTISSI No. 4011. Computer science and engineering students completing the Concentration in Information Assurance select their course options as follows:

- *Computer Science and Engineering Electives:* AMTH 387, COEN 150 or 250, and one of COEN 350, 252, 253, or CSCI 182. Students wishing to use these courses to satisfy the computer science and engineering electives must receive approval from the department chair.
- *Educational Enrichment:* Either a six-month cooperative education experience in information assurance, preferably with a federal agency or 8 additional units selected from COEN 178, 252, 253, 350, 351, and CSCI 182
- *Senior Design Project:* The project should involve security-related activities approved and mentored by designated faculty

Concentration in Web Technologies

The computer science and engineering concentration in Web technologies covers (1) the use of mark-up languages, programming, and standards to create content; (2) the infrastructure consisting of servers, Web caches, and content distribution networks to deliver millions of pages to thousands of clients in fractions of a second; and (3) usability—the quality of a system that makes it easy to learn, easy to use, easy to remember, and error tolerant. Computer science and engineering students completing the concentration in Web technologies use COEN 161, 162, and 163 to fulfill their computer science and engineering electives. In addition, either the senior design project or the cooperative education experience must be directly related to the concentration.

Concentration in Robotics

Computer science and engineering students completing the concentration in robotics use COEN 120, 123, and 166 to fulfill their computer science and engineering electives. In addition, either the senior design project or the cooperative education experience must be directly related to the concentration.

Bachelor of Science in Web Design and Engineering

In addition to fulfilling the Undergraduate Core Curriculum requirements for a bachelor of science degree in the engineering school, students majoring in Web design and engineering must complete a minimum of 175 units and the following departmental requirements (together with associated labs):

Arts, Humanities, and Social Science

- ENGL 181, 182A, 182B
- ARTS 74 or 174, 75 or 175, and 177
- COMM 2, 12, 30
- SOCI 49 or 149

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 108 (or MATH 122)

Engineering

- ENGR 1
- COEN 10 (or demonstrated equivalent programming proficiency), 11, 12 or CSCI 10, 60, 61
- COEN 60, 146, 161, 162, 163, 164, 169, 174
- COEN 194 (or ENGR 194), COEN 195 (or ENGR 195), COEN 196 (or ENGR 196)

Educational Enrichment Electives

- Same as for major in computer science and engineering.

REQUIREMENTS FOR THE MINOR IN COMPUTER SCIENCE AND ENGINEERING

Students must fulfill the following requirements for a minor:

- COEN 11, COEN 44, or CSCI 60
- COEN 12 or CSCI 61
- COEN 20, 21
- Four courses selected from COEN 70, COEN 100–180, ELEN 115, and ELEN 133
- Work completed to satisfy these requirements must include at least two courses beyond any free electives or other courses required to earn the bachelor's degree in the student's primary major.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Computer Engineering offers a combined degree program leading to the bachelor of science and a master of science open to students pursuing an undergraduate degree at Santa Clara in computer science and engineering, Web design and engineering, or computer science. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for the bachelor's degree and typically completes the requirements for a master of science within a year of obtaining the bachelor's degree.

Undergraduate students admitted to the program may begin taking graduate courses no earlier than the fall term of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn the master's degree, students must fulfill all the requirements for the degree, including the completion of 45 units of coursework beyond that applied to their bachelor's degree.

No course can be used to satisfy requirements for both the bachelor's degree and the master's degree. Completion of 12 or more units of courses in computer science and engineering taken for the master's degree satisfies the Educational Enrichment requirement of the undergraduate program. Some courses required in the master's degree programs may be replaced by free electives due to similar undergraduate coursework.

COMPUTER ENGINEERING LABORATORIES

The *ASIC Testing Laboratory* supports research conducted by graduate students from the departments of Electrical Engineering and Computer Engineering. Computer-aided testing packages from industry and the public domain are used in projects such as fault modeling and analysis. Projects include design for Test on RTL-level for digital and mixed signal circuits and design for reliability based on the defect-based testing.

The *Digital Systems Laboratory* (operated jointly with the Department of Electrical Engineering) provides complete facilities for experiments and projects ranging in complexity from a few digital integrated circuits to FPGA-based designs. The laboratory also includes a variety of development systems to support embedded systems and digital signal processing.

The *Green Computing Laboratory* is devoted to energy-efficient computing, i.e., the study and analysis of energy consumption in operating systems and networks and the development of energy-aware software.

The *Multimedia Compression Laboratory* supports research in video coding (compression and decompression).

The *Wireless Networks Laboratory* is shared by Computer Engineering and Electrical Engineering. The lab carries out research projects on the lower three layers of wireless networks. Current projects include (1) efficient scheduling of user traffic in cellular networks using smart antennas, (2) algorithms for turn-key base stations in cellular networks, and (3) changes to the MAC protocol in 802.11 based ad-hoc networks.

The *Sustainable Computing Laboratory* is dedicated to research in systems software and data storage technologies. The projects it supports focus on durable, scalable, and efficient solutions to computing problems, and the application of systems software technologies to broader sustainability problems.

The *Software Engineering Research Laboratory* is a dedicated facility not only for the support of various research activities aimed at developing engineering techniques and tools that help produce and validate high-quality software, but also for developing applications using leading-edge technologies.

The *Parallel Processing Laboratory* pursues research in fundamental problems in parallel processing, multi-core CPUs and many-core GPUs programming, and parallelizing compilers.

The *Intelligent Information Systems (I2S) Laboratory* is devoted to the theory, design, and implementation of intelligent systems to manage, retrieve, mine, and use information. The work of I2S covers a wide range of areas including Web search, information retrieval, cloud computing, social media analysis, AI, machine learning, data mining, recommendation systems, NLP, computer vision, biomedical informatics, computational politics, and computer security.

LOWER-DIVISION COURSES

10. Introduction to Programming

Overview of computing. Introduction to program design and implementation: problem definition, functional decomposition, and design of algorithm programming in PHP and C: variables, data types, control constructs, arrays, strings, and functions. Program development in the Linux environment: editing, compiling, testing, and debugging. Credit is not allowed for more than one introductory class such as COEN 10, COEN 44, CSCI 10, or OMIS 30. *Co-requisite: COEN 10L.* (4 units)

10L. Laboratory for COEN 10

Co-requisite: COEN 10. (1 unit)

11. Advanced Programming

The C Language: structure and style. Types, operators, and expressions. Control flow. Functions. Pointers, arrays, and strings. Structures and dynamic memory allocation. I/O and file processing. Special operators. Recursion and threads. The Unix environment. *Prerequisites: Previous programming experience and/or a grade of C– or better in an introductory computer programming course such as COEN 10, CSCI 10, or OMIS 30. Co-requisite: COEN 11L.* (4 units)

11L. Laboratory for COEN 11

Co-requisite: COEN 11. (1 unit)

12. Abstract Data Types and Data Structures

Data abstraction: abstract data types, information hiding, interface specification. Basic data structures: stacks, queues, lists, binary trees, hashing, tables,, graphs; implementation of abstract data types in the C language. Internal sorting: review of selection, insertion, and exchange sorts; quicksort, heapsort; recursion. Analysis of run-time behavior of algorithms; Big-O notation. Introduction to classes in C++. *Prerequisite: A grade of C– or better in either COEN 11 or 44. Co-requisite: COEN 12L. Recommended co-requisite: COEN 19 or MATH 51. Credit not allowed for more than one introductory data structures class, such as COEN 12 or CSCI 61.* (4 units)

12L. Laboratory for COEN 12

Co-requisite: COEN 12. (1 unit)

19. Discrete Mathematics

Logic, methods of proof, sets, functions, modular arithmetic, cardinality, induction, elementary combinatorial analysis, recursion, and relations. *Also listed as MATH 51.* (4 units)

20. Introduction to Embedded Systems

Introduction to computer organization: CPU, registers, buses, memory, I/O interfaces. Number systems: arithmetic and information representation. Assembly language programming: addressing techniques, arithmetic and logic operations, branching and looping, stack operations, procedure calls, parameter passing, and interrupts. C language programming: pointers, memory management, stack frames, interrupt processing. *Prerequisite: A grade of C– or better in COEN 11 or CSCI 60. Co-requisite: COEN 20L. Recommended co-requisite or prerequisite: COEN 12 or CSCI 61.* (4 units)

20L. Embedded Systems Laboratory

Laboratory for COEN 20. *Co-requisite: COEN 20.* (1 unit)

21. Introduction to Logic Design

Boolean functions and their minimization. Designing combinational circuits, adders, multipliers, multiplexers, decoders. Noise margin, propagation delay. Bussing. Memory elements: latches and flip-flops; timing; registers; counters. Programmable logic, PLD, and FPGA. Use of industry quality CAD tools for schematic capture and HDL in conjunction with FPGAs. *Also listed as ELEN 21. Co-requisite: COEN 21L.* (4 units)

21L. Logic Design Laboratory

Laboratory for COEN 21. *Also listed as ELEN 21L. Co-requisite: COEN 21.* (1 unit)

29. Current Topics in Computer Science and Engineering

Subjects of current interest. May be taken more than once if topics differ. (4 units)

44. Applied Programming

Computer programming in C, including input/output, selection structures, loops, iterative solutions, function definition and invocation, macros, pointers, memory allocation, and top-down design. Programming of elementary mathematical operations. Applications to engineering problems. *Prerequisite: MATH 13. Co-requisite: COEN 44L.* (4 units)

44L. Laboratory for COEN 44

Co-requisite: COEN 44. (1 unit)

45. Applied Programming in MATLAB

Computer programming in MATLAB, including input/output, selection structures, loops, iterative solutions, function definition and invocation, top-down design. Programming of elementary mathematical operations. Applications to engineering problems. *Prerequisite: MATH 13. Co-requisite: COEN 45L.* (4 units)

45L. Laboratory for COEN 45

Co-requisite: COEN 45. (1 unit)

60. Introduction to Web Technologies

Overview of the Internet and World Wide Web technologies and practices. Introduction to basic markup language, style sheet language, server-side scripting language, and website design. Emerging Web applications. *Co-requisite: COEN 60L.* (4 units)

60L. Laboratory for COEN 60

Co-requisite: COEN 60. (1 unit)

70. Formal Specification and Advanced Data Structures

Specification, representation, implementation, and validation of data structures; object-oriented design and programming in a strongly typed language with emphasis on reliable reusable software; formal specification of data structures (e.g., graphs, sets, bags, tables, environments, trees, expressions, graphics); informal use of specifications to guide implementation and validation of programs; guidelines and practice in designing for and with reuse. *Prerequisites: A grade of C– or better in either COEN 12 or CSCI 61 and in either COEN 19 or MATH 51. Co-requisite: COEN 70L.* (4 units)

70L. Laboratory for COEN 70

Co-requisite: COEN 70. (1 unit)

UPPER-DIVISION COURSES

120. Real-Time Systems

Overview of real-time systems: classification, design issues, and description. Finite state machines and statecharts. Robot programming: odometry and the use of sensors. Real-time programming languages, real-time kernels, and multi-threaded programming. Unified Modeling Language for the design of real-time applications. Performance analysis. *Prerequisite: A grade of C– or better in either COEN 12 or CSCI 61. Co-requisite: COEN 120L.* (4 units)

120L. Real-Time Systems Laboratory

Laboratory for COEN 120. *Co-requisite: COEN 120.* (1 unit)

122. Computer Architecture

Overview of computer systems. Instruction set architecture. Computer arithmetic. CPU datapath design. CPU control design. Pipelining. Data/control hazards. Memory hierarchies and management. Introduction of multiprocessor systems. Hardware description languages. Laboratory project consists of a design of a CPU. *Prerequisites: A grade of C– or better in either COEN 20 or ELEN 33 and in either COEN 21 or ELEN 21. Co-requisite: COEN 122L.* (4 units)

122L. Laboratory for COEN 122

Co-requisite: COEN 122. (1 unit)

123. Mechatronics

Introduction to behavior, design, and integration of electromechanical components and systems. Review of appropriate electronic components/circuitry, mechanism configurations, and programming constructs. Use and integration of transducers, microcontrollers, and actuators. *Also listed as ELEN 123 and MECH 143. Prerequisites: ELEN 50 with a grade of C– or better and COEN 11 or 44. Co-requisite: COEN 123L.* (4 units)

123L. Laboratory for COEN 123

Laboratory for COEN 123. *Co-requisite: COEN 123. Also listed as ELEN 123L and MECH 143L.* (1 unit)

127. Advanced Logic Design

Contemporary design of finite-state machines as system controllers using MSI, PLDS, or FPGA devices. Minimization techniques, performance analysis, and modular system design. HDL simulation and synthesis. *Also listed as ELEN 127. Prerequisite: COEN 21. Co-requisites: COEN 127L and ELEN 115.* (4 units)

127L. Advanced Logic Design Laboratory

Laboratory for COEN 127. Design, construction, and testing of controllers from verbal specs. Use of CAD design tools. *Also listed as ELEN 127L. Co-requisite: COEN 127.* (1 unit)

129. Current Topics in Computer Science and Engineering

Subjects of current interest. May be taken more than once if topics differ. (4 units)

145. Introduction to Parallel Programming

Concept of parallelism, thread programming, thread/process synchronization, synchronization algorithms and language constructs, shared-memory versus message-passing. Parallel programming concept, performance metrics, overview of parallel architectures, evaluation of parallel algorithms, data parallel programming, shared-memory, and message-passing parallel programming. Case studies on application algorithms. Hands-on lab on multi-core CPUs and many-core GPUs. *Prerequisites: A grade of C– or better in COEN 11 and 122. Co-requisite: COEN 145L.* (4 units)

145L. Laboratory for COEN 145

Co-requisite: COEN 145. (1 unit)

146. Computer Networks

Data communication: circuit and packet switching, latency and bandwidth, throughput/delay analysis. Application layer: client/server model, socket programming, Web, email, FTP. Transport layer: TCP and UDP, flow control, congestion control, sliding window techniques. Network layer: IP and routing. Data link layer: shared channels, media access control protocols, error detection and correction. Mobile computing and wireless networks. Network security. Laboratory consists of projects on software development of network protocols and applications. *Prerequisite: A grade of C– or better in either COEN 12 or CSCI 61. Co-requisite: COEN 146L. Recommended co-requisite or prerequisite: AMTH 108 or MATH 122.* (4 units)

146L. Laboratory for COEN 146

Co-requisite: COEN 146. (1 unit)

148. Computer Graphics Systems

Interactive graphic systems. Graphics primitives, line and shape generation. Simple transforming and modeling. Efficiency analysis and modular design. Interactive input techniques. Three-dimensional transformations and viewing, hidden surface removal. Color graphics, animation, real-time display considerations. Parametric surface definition and introduction to shaded-surface algorithms. Offered in alternate years. *Prerequisites: MATH 53; a grade a C– or better in either COEN 12 or CSCI 61. Co-requisite: COEN 148L.* (4 units)

148L. Laboratory for COEN 148

Co-requisite: COEN 148. (1 unit)

150. Introduction to Information Security

Overview of information assurance. Legal and ethical issues surrounding security and privacy. Malware and other threats. Authentication and authorization. Risk management and other related topics. *Prerequisite: Junior standing. Students may take COEN 250 to fulfill the Information Assurance concentration.* (4 units)

152. Introduction to Computer Forensics

Procedures for identification, preservation, and extraction of electronic evidence. Auditing and investigation of network and host system intrusions, analysis and documentation of information gathered, and preparation of expert testimonial evidence. Forensic tools and resources for system administrators and information system security officers. Ethics, law, policy, and standards concerning digital evidence. *Prerequisites: A grade of C– or better in either COEN 12 or CSCI 61 and in COEN 20. Co-requisite: COEN 152L.* (4 units)

152L. Laboratory for COEN 152

Co-requisite: COEN 152. (1 unit)

160. Object-Oriented Analysis, Design, and Programming

Four important aspects of object-oriented application development are covered: fundamental concepts of the OO paradigm, building analysis and design models using UML, implementation using Java, and testing object-oriented systems. *Prerequisite: A grade of C– or better in COEN 70. Co-requisite: COEN 160L. Co-listed with COEN 275.* (4 units)

160L. Laboratory for COEN 160

Co-requisite: COEN 160. (1 unit)

161. Web Programming I

Fundamentals of the World Wide Web (WWW) and the technologies that are required to develop web-based applications. Topics cover HTML5, CSS, JavaScript, PHP, MYSQL and XML. *Prerequisite: A grade of C– or better in either COEN 12 or CSCI 61. Co-requisite: COEN 161L.* (4 units)

161L. Laboratory for COEN 161

Co-requisite: COEN 161. (1 unit)

162. Web Infrastructure

History and overview of World Wide Web technology. Web protocols. Web Navigation. Web caching and load balancing. P2P, Instant Messaging, and Web Services. Web Servers, Server Farms, and Data Centers. *Prerequisite: A grade of C– or better in COEN 146.* (4 units)

163. Web Usability

Principles of user-centered design. Principles of human computer interaction. Fundamental theories in cognition and human factors: information processing, perception and representation, constructivist and ecological theories, Gestalt laws of perceptual organization. Usability engineering: user research, user profiling, method for evaluating user interface, usability testing. Prototyping in user interface: process, methods of evaluating and testing. Inclusive design in user interface design: accessibility issues, compliance with section 508 of Rehabilitation Act. *Prerequisite: A grade of C– or better in either COEN 12 or CSCI 61. Co-requisite: COEN 163L.* (4 units)

163L. Laboratory for COEN 163

Co-requisite: COEN 163. (1 unit)

164. Web Programming II

Advanced topics in Web Application Development; Development with Web Frameworks (Ruby with Rails), implement Web services and management of Web security. *Prerequisite: A grade of C– or better in COEN 161. Co-requisite: COEN 164L.* (4 units)

164L. Laboratory for COEN 164

Co-requisite: COEN 164. (1 unit)

165. Introduction to 3D Animation & Modeling/Modeling & Control of Rigid Body Dynamics

Mathematical and physical principles of motion of rigid bodies, including movement, acceleration, inertia and collision. Modeling of rigid body dynamics for three-dimensional graphic simulation; controlling the motion of rigid bodies in robotic applications. *Also listed as ARTS 173. Prerequisites: MATH 14; COEN 12 or CSCI 61.* (4 units)

166. Artificial Intelligence

Philosophical foundations of Artificial Intelligence, problem solving, knowledge and reasoning, neural networks, and other learning methods. *Prerequisites: A grade of C– or better in either COEN 12 or CSCI 61 and in either COEN 19 or MATH 51.* (4 units)

168. Mobile Application Development

Design and implementation of applications running on a mobile platform such as smart phones and tablets. Programming languages and development tools for mobile SDKs. Writing code for Peripherals-GPS, accelerometer, touchscreen. Optimizing user interface for a small screen. Effective memory management on a constrained device. Embedded graphics. Persistent data storage. *Prerequisite: A grade of C– or better in COEN 20 or COEN 70 or equivalent. Co-requisite: COEN 168L. Co-located with COEN 268.* (4 units)

168L. Laboratory for COEN 168

Co-requisite: COEN 168. (1 unit)

169. Web Information Management

Theory, design, and implementation of information systems that process, organize, analyze large-scale information on the Web. Search engine technology, recommender systems, cloud computing, social network analysis. *Prerequisite: AMTH 108 or MATH 122; COEN 12 or CSCI 61; or permission of the instructor.* (4 units)

171. Principles of Design and Implementation of Programming Languages

High-level programming language concepts and constructs. Costs of use and implementation of the constructs. Issues and trade-offs in the design and implementation of programming languages. Critical look at several modern high-level programming languages. *Prerequisite: A grade of C– or better in COEN 12 or CSCI 61.* (4 units)

172. Structure and Interpretation of Computer Programs

Techniques used to control complexity in the design of large software systems: design of procedural and data abstractions; design of interfaces that enable composition of well-understood program pieces; invention of new, problem-specific languages for describing a design. *Prerequisites: COEN 19 or MATH 51; COEN 70 or CSCI 61; or permission of the instructor.* (4 units)

172L. Laboratory for COEN 172

Co-requisite: COEN 172. (1 unit)

173. Logic Programming

Application of logic to problem solving and programming; logic as a language for specifications, programs, databases, and queries; separation of logic and control aspects of programs; bottom-up reasoning (forward from assumptions to conclusions) versus top-down reasoning (backward from goals to subgoals) applied to problem solving and programming; nondeterminism, concurrency, and invertibility in logic programs. Programs written and run in Prolog. *Prerequisites: COEN 70 or CSCI 61 and COEN 19 or MATH 51.* (4 units)

173L. Laboratory for COEN 173

Co-requisite: COEN 173. (1 unit)

174. Software Engineering

Software development life cycle. Project teams, documentation, and group dynamics. Software cost estimation. Requirements engineering and design. Data modeling, object modeling, and object-oriented analysis. Object-oriented programming and design. Software testing and quality assurance. Software maintenance. *Prerequisite: A grade of C– or better in COEN 12 or CSCI 61. Co-requisite: COEN 174L.* (4 units)

174L. Laboratory for COEN 174

Co-requisite: COEN 174. (1 unit)

175. Introduction to Formal Language Theory and Compiler Construction

Introduction to formal language concepts: regular expressions and context-free grammars. Compiler organization and construction. Lexical analysis and implementation of scanners. Top-down and bottom-up parsing and implementation of top-down parsers. An overview of symbol table arrangement, run-time memory allocation, intermediate forms, optimization, and code generation. *Prerequisites: A grade of C– or better in COEN 20 and COEN 70. Co-requisite: COEN 175L.* (4 units)

175L. Laboratory for COEN 175

Co-requisite: COEN 175. (1 unit)

177. Operating Systems

Introduction to computer operating systems. Operating system concepts, computer organization model, storage hierarchy, operating system organization, processes management, interprocess communication and synchronization, memory management and virtual memory, I/O subsystems, and file systems. Design, implementation, and performance issues. *Prerequisites: A grade of C– or better in either COEN 12 or CSCI 61 and in COEN 20. Co-requisite: COEN 177L.* (4 units)

177L. Laboratory for COEN 177

Co-requisite: COEN 177. (1 unit)

178. Introduction to Database Systems

ER diagrams and the relational data model. Database design techniques based on integrity constraints and normalization. Database security and index structures. SQL and DDL. Transaction processing basics. *Prerequisites: A grade of C– or better in COEN 12 or CSCI 61. Co-requisite: COEN 178L.* (4 units)

178L. Laboratory for COEN 178

Co-requisite: COEN 178. (1 unit)

179. Theory of Algorithms

Introduction to techniques of design and analysis of algorithms: asymptotic notations and running times of recursive algorithms; design strategies: brute-force, divide and conquer, decrease and conquer, transform and conquer, dynamic programming, greedy technique. Intractability: P and NP, approximation algorithms. *Also listed as CSCI 163. Prerequisites: A grade of C– or better in either COEN 12 or CSCI 61, and in either COEN 19 or MATH 51.* (4 units)

180. Introduction to Information Storage

Storage hierarchy. Caching. Design of memory and storage devices, with particular emphasis on magnetic disks and storage-class memories. Error detection, correction and avoidance fundamentals. Disk arrays. Storage interfaces and buses. Network attached and distributed storage, interaction of economy and technological innovation. *Also listed as ELEN 180. Prerequisites: A grade of C– or better in either COEN 12 or CSCI 61. Recommended prerequisite: COEN 20.* (4 units)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. May not be taken for graduate credit. (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Approval of department advisor required. Letter grades based on content and quality of report. May be taken twice. May not be taken for graduate credit. (2 units)

193. Undergraduate Research

Involves working on a year-long research project with one of the faculty members. Students should register three times in a row for a total of 6 units. Does not substitute for the senior project, which may be a continuation of the research done. *Registration requires the faculty member's approval. Students must have junior or senior standing and a minimum GPA of 3.0.* (2 units)

194. Design Project I

Specification of an engineering project, selected with the mutual agreement of the student and the project advisor. Complete initial design with sufficient detail to estimate the effectiveness of the project. Initial draft of the project report. (2 units)

195. Design Project II

Continued design and construction of the project, system, or device. Initial draft of project report. *Prerequisite: COEN 194.* (2 units)

196. Design Project III

Continued design and construction of the project, system, or device. Formal public presentation of results. Final report. *Prerequisite: COEN 195.* (2 units)

199. Directed Research/Reading

Special problems. *By arrangement.* (1–5 units)

DEPARTMENT OF ELECTRICAL ENGINEERING

Professor Emeritus: Dragoslav D. Siljak
Professors: Timothy J. Healy, Samiha Mourad (*William and Janice Terry Professor and Department Chair*), Sally L. Wood (*Thomas J. Bannan Professor*), Cary Y. Yang, Aleksandar Zecevic
Associate Professors: Shoba Krishnan, Tokunbo Ogunfunmi, M. Mahmudur Rahman, Sarah Kate Wilson (*David Packard Fellow)*
Adjunct Associate Professor: Ramesh Abhari

Electrical engineering includes the broad range of design, construction, and operation of electrical components, circuits, and systems. This includes sustainable energy and electric power, signal and image processing, embedded systems, nanotechnology, and all phases of the transmission of information such as in mobile communications, radio, television, satellite communication.

Laboratories are an important part of most undergraduate courses in the electrical engineering program. Use of appropriate laboratory equipment, design tools, and components demonstrates fundamental concepts of the courses and acquaints students with methods and tools they may use after graduation. The program is supported by the facilities of the Engineering Design Center and the University's Information Technology Center. In addition, the department supports 10 major teaching and research laboratories, three additional laboratories used only for teaching, and a laboratory dedicated to the support of senior design projects. The three teaching laboratories cover the fields of electric circuits, electronic circuits, and logic design.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum for the bachelor of science degree, students majoring in electrical engineering must fulfill the following major requirements and complete a minimum of 190 units. For every required engineering and science course, if an associated laboratory is listed following the course description, then that laboratory is also required to fulfill the major requirements.

English

- ENGL 181, 182A, 182B

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 106 (or MATH 22) and AMTH 108 (or MATH 122)
- CHEM 11
- One from CHEM 12; BIOL 21; PHYS 113, 121; MATH 53, 105, 123
- PHYS 31, 32, 33, 34

Engineering

- ENGR 1
- CENG 41
- COEN 44 (or 11), and COEN 12
- MECH 121
- ELEN 20, 21, 33, 50, 100, 104, 110, 115, 192, 194, 195, 196
- One from ELEN 105, 116, 130, 133, 141, 151, 153

Technical Electives

Three undergraduate-equivalent courses selected from areas including electronics, nanotechnology, digital and embedded systems, mechatronics, communication, control, signal processing, and energy systems. Courses may be selected from:

- Upper-division electrical engineering elective courses
- COEN 120, 122, 146
- First-year graduate level electrical engineering coursework approved by the advisor (2-unit graduate courses count as one-half of an undergraduate course)

At least one technical elective must be selected from each of the following categories. (A single course may satisfy more than one category requirement.):

- Design Team: ELEN 116, 117, 123, 127, 144, 152, 153, 156, 161, 162, 164, 182
- Advanced Mathematics: ELEN 105, 112, 118, 130, 131, 133, 134, 141, 144, 156, 160, 183
- Computer-Aided Design Tools: ELEN 112, 116, 117, 118, 123, 127, 131, 133, 141, 144, 153, 164, 180

Professional Development

A professional development experience selected from one of the following options:

- 4 or more units in a study abroad program that does not duplicate other coursework
- Cooperative education experience with enrollment in ELEN 188 and ELEN 189
- 2 units in ENGR 110 (Engineering Projects for the Community)
- Preparation for graduate study in electrical engineering with completion of 4 or more additional units of upper-division or graduate-level courses
- Completion of an approved minor or second major in any field of engineering or science
- Completion of 10 or more units in the Combined Bachelor of Science and Master of Science Program
- Peer education experience

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in electrical engineering:

- ELEN 21, 21L, 50, 50L, 115, 115L
- Two courses selected from ELEN 100, 104, 110, and 151, and the associated laboratory courses
- Three upper-division ELEN lecture courses (ELEN 100-level courses, excluding ELEN 188, 189, 192, 194, 195, and 196)
- Work completed to satisfy these requirements for the minor must include at least two courses beyond any free electives or other courses required to earn the bachelor's degree in the student's primary major.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Electrical Engineering offers a combined degree program leading to the bachelor of science and a master of science. This program is open to electrical engineering majors with an approved grade point average in electrical engineering, mathematics, and physics courses. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for the bachelor's degree and typically completes the requirements for a master of science in electrical engineering within a year of obtaining the bachelor's degree. Undergraduate students interested in the combined degree program are required to apply for the program between February of their junior year and December of their senior year.

Students in this program will receive their bachelor's degree after satisfying the full undergraduate degree requirements. To earn the master's degree, students must fulfill all the requirements for the degree, including the completion of 45 units of coursework beyond that applied to their bachelor's degree. No course can be used to satisfy requirements for both the bachelor's degree and the master's degree. However, completion of 10 or more units of coursework in electrical engineering taken for the master's degree satisfies the professional development requirement of the undergraduate program.

The program of studies for the master's degree may include up to 20 units of electrical engineering upper-division elective coursework excluding ELEN 188 and 189. These undergraduate units can count toward a master's degree only if a grade of "B" or better is earned. Students who do not complete the combined degree program within six years of entering the University will automatically be transferred to the regular master's degree program. Although six years is the maximum timeframe for completing the combined degree, full-time students enrolling in February of their junior year normally complete both degrees within five years.

ELECTRICAL ENGINEERING LABORATORIES

The *ASIC Testing Laboratory* supports research conducted by graduate students from the departments of Electrical Engineering and Computer Engineering. Computer-aided testing packages from industry and the public domain are used in projects such as fault modeling and analysis. Projects include design for test on RTL-level for digital and mixed signal circuits, and design for reliability based on the defect-based testing.

The *Communications and Microwave Laboratory* provides a full range of modern measurement capability from 0 to 22 GHz, including a number of automatic network analyzers and modern spectrum analyzers. It also has extensive computer-aided design and simulation capability. Interconnection of hardware measurements and computer simulation is stressed.

The *Digital Systems Laboratory* (operated jointly with the Department of Computer Engineering) provides complete facilities for experiments and projects ranging in complexity from a few digital integrated circuits to FPGA-based designs. The laboratory also includes a variety of development systems to support embedded systems and digital signal processing.

The *Electronic Devices Laboratory* is dedicated to teaching and research topics on electronic devices, materials, and their manufacturing technologies. Current research topics include impact of process variations on the analysis and optimization of VLSI circuits, photovoltaic devices, and MOS device modeling including quantum mechanical interface charge distribution effects.

The *Intelligent Control Laboratory* provides an experimental environment for students in the area of control and system engineering. It includes a computer-controlled robotic system, several servo-experimenters, and a torsional mechanical control system. The equipment provides students with a wide range of qualitative and quantitative experiments for learning the utility and versatility of feedback in computer-controlled systems.

The *Latimer Energy Laboratory (LEL)* supports a very wide range of activities relating to photovoltaics (PV), from K–12 outreach through graduate engineering. The laboratory focuses on measurement of solar radiation, measurement and characterization of artificial light sources, study of physical characteristics of PV cells, and electrical characteristics, including I-V curves. Instrumentation includes pyranometers, VIS-IR spectrometers, metallurgical microscopes, source meters, and related computers.

The *Nanoelectronics Laboratory* provides teaching and research facilities for modeling, simulation, and characterization of devices and circuits in the nanoscale. Ongoing research topics include silicon heterostructures, thin dielectrics, high-frequency device and circuit parameter extraction, carbon nanostructures used as electrical interconnect and thermal interface materials, and compact modeling of transistors and interconnects for large-scale circuit simulation. This laboratory is part of the campus-wide Center for Nanostructures, established to conduct, promote, and nurture nanoscale science and technology interdisciplinary research and education activities at the University, and to position the University as a national center of innovation in nanoscience education and nanostructures research.

The *Image and Video Processing Laboratory* supports graduate student research on algorithms and implementations for image analysis, image reconstruction and super-resolution, and stereo imaging. Laboratory equipment includes cameras for image acquisition and computational resources, including FPGAs and GPUs for real-time testing.

The *Robotics Systems Laboratory* is an interdisciplinary laboratory specializing in the design, control, and teleoperation of highly capable robotics systems for scientific discovery, technology validation, and engineering education. Laboratory students develop and operate systems that include spacecraft, underwater robots, aircraft, and land rovers. These projects serve as ideal test beds for learning and conducting research in mechatronic system design, guidance and navigation, command and control systems, and human-machine interfaces.

The *Signal Processing Research Laboratory (SPRL)* conducts research into theoretical algorithm development in adaptive/nonlinear signal processing, speech/audio/video signal processing and their applications in communications, biotech, Voice-over-IP networking and related areas. The lab supports student research in algorithms and real-time implementations on digital signal processors (DSPs) and field programmable gate arrays (FPGAs). Laboratory equipment includes digital oscilloscopes, video cameras, wireless LAN networking equipment, DSP boards, and FPGA boards.

LOWER-DIVISION COURSES

20. Emerging Areas in Electrical Engineering

Introduction to several important new frontiers in electrical engineering selected from: renewal energy sources and conversion to electricity, energy storage devices and systems, nanoscale science and technology, power electronics, high-speed electronics, and ubiquitous wireless and video communications. Course includes laboratory experience and visits to research and production facilities in Silicon Valley companies. (3 units)

21. Introduction to Logic Design

Boolean functions and their minimization. Designing combinational circuits, adders, multipliers, multiplexers, decoders. Noise margin, propagation delay. Bussing. Memory elements: latches and flip-flops; timing; registers; counters. Programmable logic, PLD, and FPGA. Use of industry quality CAD tools for schematic capture and HDL in conjunction with FPGAs. *Also listed as COEN 21. Co-requisite: ELEN 21L.* (4 units)

21L. Logic Design Laboratory

Laboratory for ELEN 21. *Also listed as COEN 21L. Co-requisite: ELEN 21.* (1 unit)

33. Digital Systems Architecture

Overview of processor architectures for general purpose processors, special purpose signal processing microprocessors, and FPGA soft core processors; data representation in fixed point, floating point; instruction set architectures; assembly and machine language programming; real-time I/O; introduction to sample data systems. Analog to digital converters and digital to analog converters. *Prerequisites: ELEN 21 with a grade of C– or better, and COEN 11 or 44. Co-requisite: ELEN 33*L, *COEN 12.* (4 units)

33L. Digital Systems Architecture Laboratory

Laboratory for ELEN 33. *Co-requisite: ELEN 33.* (1 unit)

50. Electric Circuits I

Physical basis and mathematical models of circuit components and energy sources. Circuit theorems and methods of analysis are applied to DC and AC circuits. *Co-requisite: ELEN 50L, PHYS 33.* (4 units)

50L. Electric Circuits I Laboratory

Laboratory for ELEN 50. *Co-requisite: ELEN 50.* (1 unit)

UPPER-DIVISION COURSES

100. Electric Circuits II

Continuation of ELEN 50. Sinusoidal steady state and phasors, transformers, resonance, Laplace analysis, transfer functions. Frequency response analysis. Bode diagrams. Switching circuits. *Prerequisites: ELEN 50 with a grade of C– or better, or PHYS 70. Co-requisite: ELEN 100L, AMTH 106.* (4 units)

100L. Electric Circuits II Laboratory

Laboratory for ELEN 100. *Co-requisite: ELEN 100.* (1 unit)

104. Electromagnetics I

Vector analysis and vector calculus. The laws of Coulomb, Lorentz, Faraday, and Gauss. Dielectric and magnetic materials. Energy in electric and magnetic fields. Capacitance and inductance. Maxwell's equations. Wave equation. Poynting vector. Wave propagation and reflection. Transmission lines. Radiation. *Prerequisites: PHYS 33 and ELEN 50. Co-requisite: ELEN 104L.* (4 units)

104L. Electromagnetics I Laboratory

Laboratory for ELEN 104. *Co-requisite: ELEN 104.* (1 unit)

105. Electromagnetics II

In-depth study of several areas of electromagnetics such as device parasitics, matching circuits, Poisson equation solutions, antennas and antenna arrays, and transmission lines. *Prerequisite: ELEN 104. Co-requisite: ELEN 105L.* (4 units)

105L. Electromagnetics II Laboratory

Laboratory for ELEN 105. *Co-requisite: ELEN 105.* (1 unit)

110. Linear Systems

Signals and system modeling. Laplace transform. Transfer function. Convolution. Discrete systems and Z-transform. Frequency analysis. Fourier series and transform. Filtering. State-Space models. *Prerequisite: ELEN 100. Co-requisite: ELEN 110L.* (4 units)

110L. Linear Systems Laboratory

Laboratory for ELEN 110. MATLAB laboratory/problem sessions. *Co-requisite: ELEN 110.* (1 unit)

112. Modern Network Synthesis and Design

Approximation and synthesis of active networks. Filter design using positive and negative feedback biquads. Sensitivity analysis. Fundamentals of passive network synthesis. Design project. *Prerequisite: ELEN 110. Co-requisite: ELEN 112L.* (4 units)

112L. Modern Network Synthesis and Design Laboratory

Laboratory for ELEN 112. *Co-requisite: ELEN 112.* (1 unit)

115. Electronic Circuits I

Study of basic principles of operation, terminal characteristics, and equivalent circuit models for diodes and transistors. Analysis and design of diode circuits, transistor amplifiers, and inverter circuits. *Prerequisite: ELEN 50 with a grade of C– or better. Co-requisite: ELEN 115L.* (4 units)

115L. Electronic Circuits I Laboratory

Laboratory for ELEN 115. *Co-requisite: ELEN 115.* (1 unit)

116. Electronic Circuits II

Design and analysis of multistage analog amplifiers. Study of differential amplifiers, current mirrors and gain stages. Frequency response of cascaded amplifiers and gain-bandwidth considerations. Concepts of feedback, stability, and frequency compensation. Design of output stages and power amplifiers. *Prerequisite: ELEN 115. Co-requisite: ELEN 116L.* (4 units)

116L. Electronic Circuits II Laboratory

Laboratory for ELEN 116. *Co-requisite: ELEN 116.* (1 unit)

117. Electronic Circuits III

Design and analysis of BJT and MOSFET analog ICs. Study of analog circuits such as comparators, sample/hold amplifiers, and continuous time switched capacitor filters. Architecture and design of analog to digital and digital to analog converters. Reference and biasing circuits. Study of noise and distortion in analog ICs. *Prerequisite: ELEN 116. Co-requisite: ELEN 117L.* (4 units)

117L. Electronic Circuits III Laboratory

Laboratory for ELEN 117. *Co-requisite: ELEN 117.* (1 unit)

118. Fundamentals of Computer-Aided Circuit Simulation

Introduction to algorithms and principles used in circuit simulation packages (such as SPICE). Formulation of equations for linear and nonlinear circuits. Detailed study of the three different types of circuit analysis (AC, DC, and transient). Discussion of computational aspects, including sparse matrices, Newton's method, numerical integration, and parallel computing. Applications to electronic circuits, active filters, and CMOS digital circuits. Course includes a number of design projects in which simulation software is written in MATLAB and verified using SPICE. *Prerequisites: ELEN 21, with a grade of C– or better; ELEN 100 and 115. Co-requisite: ELEN 118L.* (4 units)

118L. Fundamentals of Computer-Aided Circuit Stimulation Laboratory

Laboratory for ELEN 118. *Co-requisite: ELEN 118.* (1 unit)

119. Current Topics in Electrical Engineering

Subjects of current interest. May be taken more than once if topics differ. (4 units)

123. Mechatronics

Introduction to behavior, design, and integration of electromechanical components and systems. Review of appropriate electronic components/circuitry, mechanism configurations, and programming constructs. Use and integration of transducers, microcontrollers, and actuators. *Also listed as MECH 143. Prerequisite: ELEN 50 with a grade of C– or better and COEN 11 or 44. Co-requisite: ELEN 123L.* (4 units)

123L. Mechatronics Laboratory

Laboratory for ELEN 123. *Co-requisite: ELEN 123. Also listed as MECH 143L.* (1 unit)

127. Advanced Logic Design

Contemporary design of finite-state machines as system controllers using MSI, PLDs, or FPGA devices. Minimization techniques, performance analysis, and modular system design. HDL simulation and synthesis. *Also listed as COEN 127. Prerequisite: ELEN 21 with a grade of C– or better. Co-requisites: ELEN 127L and ELEN 115.* (4 units)

127L. Advanced Logic Design Laboratory

Laboratory for ELEN 127. Design, construction, and testing of controllers from verbal specs. Use of CAD design tools. *Also listed as COEN 127L. Co-requisite: ELEN 127.* (1 unit)

130. Control Systems

Applications of control systems in engineering. Principle of feedback. Performance specifications: transient and steady-state response. Stability. Design of control systems by frequency and root-locus methods. Computer-controlled systems. State-variable feedback design. Problem sessions. *Prerequisite: ELEN 110. Co-requisite: ELEN 130L.* (4 units)

130L. Control Systems Laboratory

Laboratory for ELEN 130. *Co-requisite: ELEN 130.* (1 unit)

131. Introduction to Robotics

Overview of robotics: control, artificial intelligence, and computer vision. Components and structure of robots. Kinematics and dynamics of robot manipulators. Servo-control design, PID control. Trajectory planning, obstacle avoidance. Sensing and vision. Robot intelligence and task planning. *Prerequisite: ELEN 110. Co-requisite: ELEN 131L.* (4 units)

131L. Introduction to Robotics Laboratory

Laboratory for ELEN 131. *Co-requisite: ELEN 131.* (1 unit)

133. Digital Signal Processing

Discrete signals and systems. Difference equations. Convolution summation. Z-transform, transfer function, system response, stability. Digital filter design and implementation. Frequency domain analysis. Discrete Fourier transform and FFT. Audio, video, and communication applications. *Prerequisites: ELEN 110 or both ELEN 50 with a grade of C– or better, and COEN 19. Co-requisite: ELEN 133L.* (4 units)

133L. Digital Signal Processing Laboratory

Laboratory for ELEN 133. Laboratory for real-time processing. *Co-requisite: ELEN 133.* (1 unit)

134. Applications of Signal Processing

Current applications of signal processing. *Prerequisite: ELEN 133. Co-requisite: ELEN 134L.* (4 units)

134L. Applications of Signal Processing Laboratory

Laboratory for ELEN 134. *Co-requisite: ELEN 134.* (1 unit)

139. Special Topics in Signals and Systems

Subjects of current interest. May be taken more than once if topics differ. (4 units)

141. Communication Systems

Signal description; Fourier transforms; filtering; noise description; linear, exponential, and pulse modulation and demodulation. Amplitude and frequency modulation, phase lock loops. *Prerequisites: ELEN 110 and AMTH 108. Co-requisite: ELEN 141L.* (4 units)

141L. Communication Systems Laboratory

Laboratory for ELEN 141. *Co-requisite: ELEN 141.* (1 unit)

144. RF and Microwave Components

The fundamental characteristics of passive and active electrical components. Parasitics, models, and measurements. Modeling of circuit interconnect wiring as transmission lines. Study of crosstalk and other noises in high-speed digital circuits. Use of state-of-the-art CAD tools. *Prerequisite: ELEN 104. Co-requisite: ELEN 144L.* (4 units)

144L. RF and Microwave Components Laboratory

Laboratory for ELEN 144. *Co-requisite: ELEN 144.* (1 unit)

151. Semiconductor Devices

Properties of materials, crystal structure, and band structure of solids. Carrier statistics and transport; p-n junction statics, I-V characteristics, equivalent circuits, and switching response. Metal-semiconductor contacts, Schottky diodes. MOS field-effect transistors, bipolar junction transistors. *Prerequisite: ELEN 104. Co-requisite: ELEN 151L.* (4 units)

151L. Semiconductor Devices Laboratory

Laboratory for ELEN 151. *Co-requisite: ELEN 151.* (1 unit)

152. Semiconductor Devices and Technology

Continuation of MOS field-effect transistors, bipolar junction transistors, heterjunctions. Principles of silicon IC fabrication processes. Bulk and expitaxial crystal growth, thermal oxidation, diffusion, ion implantation. Process simulation for basic devices. *Prerequisite: ELEN 151. Co-requisite: ELEN 152L.* (4 units)

152L. Semiconductor Devices and Technology Laboratory

Laboratory for ELEN 152. *Co-requisite: ELEN 152.* (1 unit)

153. Digital Integrated Circuit Design

Introduction to VLSI design and methodology. Study of basic principles of operation, terminal characteristics, and equivalent circuit models for diodes and transistors. Analysis of CMOS integrated circuits. Circuit modeling and performance evaluation supported by simulation (SPICE). Ratioed, switch, and dynamic logic families; combinational and sequential circuits. Fully-custom and semi-custom design. Physical design: placement and routing. Use of state-of-the-art CAD tools. *Prerequisites: ELEN/COEN 21 and ELEN 50 with a grade of C– or better. Co-requisite: ELEN 153L.* (4 units)

153L. Digital Integrated Circuit Design Laboratory

Laboratory for ELEN 153. *Co-requisite: ELEN 153.* (1 unit)

156. Introduction to Nanotechnology

Introduction to the field of nanoscience and nanotechnology. Properties of nanomaterials and devices. Nanoelectronics: from silicon and beyond. Measurements of nanosystems. Applications and implications. Laboratory experience is an integral part of the course. *Also listed as MECH 156. Prerequisites: PHYS 33 and either PHYS 34 or MECH 15. Co-requisite: ELEN 156L.* (4 units)

156L. Introduction to Nanotechnology Laboratory

Laboratory for ELEN 156. *Also listed as MECH 156L. Co-requisite: ELEN 156.* (1 unit)

160. Chaos Theory, Metamathematics, and the Limits of Knowledge: A Scientific Perspective on Religion

Limitations of science are examined in the framework of nonlinear system theory and metamathematics. Strange attractors, bifurcations, and chaos are studied in some detail. Additional topics include an introduction to formal systems and an overview of Godel's theorems. The mathematical background developed in the course is used as a basis for exploring the relationship between science, aesthetics, and religion. Particular emphasis is placed on the rationality of faith. *Also listed as ELEN 217. Prerequisites: AMTH 106 (or an equivalent course in differential equations), and a basic familiarity with MATLAB. Co-requisite: ELEN 160L.* (4 units)

160L. Chaos Theory, Metamathematics, and the Limits of Knowledge: A Scientific Perspective on Religion Laboratory

Laboratory for ELEN 160. *Co-requisite: ELEN 160.* (1 unit)

161. Bioinstrumentation

Transducers and biosensors from traditional to nanotechnology; bioelectronics and measurement system design; interface between biological system and instrumentation; data analysis; clinical safety. Laboratory component will include traditional clinical measurements and design and test of a measurement system with appropriate transducers. No human or animal subjects will be used. *Also listed as BIOE 161. Prerequisites: BIOL 21, BIOE 10, ELEN 50. Co-requisite: ELEN 161L.* (4 units)

161L. Bioinstrumentation Laboratory

Laboratory for ELEN 161. *Also listed as BIOE 161L. Co-requisite: ELEN 161.* (1 unit)

162. Biosignals and Processing

Origin and characteristics of bioelectric, bio-optical, and bioacoustic signals generated from biological systems. Behavior and response of biological systems to stimulation. Acquisition and interpretation of signals. Signal processing methods include FFT spectral analysis and time-frequency analysis. Laboratory component will include modeling of signal generation and analysis of signals such as electrocardiogram (ECG), electroglottogram (EGG), and vocal sound pressure waveforms. *Also listed as BIOE 162. Prerequisites: AMTH 106, BIOE 10, ELEN 50. Co-requisite: ELEN 162L.* (4 units)

162L. Biosignals and Processing Laboratory

Laboratory for ELEN 162. *Also listed as BIOE 162L. Co-requisite: ELEN 162.* (1 unit)

164. Introduction to Power Electronics

Development of models utilizing semiconductor materials used in high-current and/or high-voltage applications. Models include DC-to-DC converters, AC-to-DC converters, and DC-to-AC inverters. Analysis of power amplifiers. SPICE implementations of models. *Prerequisite: ELEN 115. Co-requisite: ELEN 164L.* (4 units)

164L. Introduction to Power Electronics Laboratory

Laboratory for ELEN 164. *Co-requisite: ELEN 164.* (1 unit)

167. Medical Imaging Systems

Overview of medical imaging systems including sensors and electrical interfaces for data acquisition, mathematical models of the relationship of structural and physiological information to senor measurements, resolution and accuracy limits, and conversion process from electronic signals to image synthesis. Analysis of the specification and interaction of the functional units of imaging systems and the expected performance. Focus on MRI, CT, ultrasound, PET, and impedance imaging. *Also listed as BIOE 167. Prerequisite: BIOE 162 or ELEN 162 or ELEN 110 or MECH 142.* (4 units)

180. Introduction to Information Storage

Storage hierarchy. Design of memory and storage devices, with a particular emphasis on magnetic disks and storage-class memories. Error detection, correction, and avoidance fundamentals. Disk arrays. Storage interfaces and buses. Network attached and distributed storage, interaction of economy, and technological innovation. *Also listed as COEN 180. Prerequisites: ELEN 21 or COEN 21, and COEN 20; COEN 122 is recommended.* (4 units)

182. Energy Systems Design

Introduction to alternative energy systems with emphasis on those utilizing solar technologies; system analysis including resources, extraction, conversion, efficiency, and end-use; project will design power system for a house off or on grid making best use of renewable energy; system design will include power needs, generation options, storage, back-up power. *Prerequisite: ELEN 50.* (4 units)

183. Power Systems Analysis

Analysis, design, and optimization of power systems for traditional and renewable power generation. *Prerequisite: ELEN 100 or Physics 112.* (4 units)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. May be taken twice. May not be taken for graduate credit. (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Letter grades based on content and presentation quality of report. May be taken twice. May not be taken for graduate credit. *Prerequisite: Approval of department co-op advisor required.* (2 units)

192. Introduction to Senior Design Project

Junior preparation for senior project. An introduction to project requirements and participation in the coordination of the senior conference. Tentative project selection. (2 units)

194. Design Project I

Specification of an engineering project, selected with the mutual agreement of the student and the project advisor. Complete initial design with sufficient detail to estimate the effectiveness of the project. Initial draft of the project report. *Co-requisite: ENGL 181.* (2 units)

195. Design Project II

Continued design, construction, and testing of the project, system, or device. Second draft of project report. *Prerequisite: ELEN 194.* (2 units)

196. Design Project III

Continued design, construction, and testing of the project, system, or device. Formal public presentation of results. Final report. *Prerequisite: ELEN 195.* (1 unit)

199. Directed Research/Reading

Investigation of an approved engineering problem and preparation of a suitable project report. *Open to electrical engineering majors only.* (1–6 units)

GENERAL ENGINEERING

Associate Dean for Undergraduate Studies: Ruth E. Davis

The School of Engineering, under the direction of the Office of the Dean, offers a major in general engineering and a minor in general engineering. The bachelor of science degree in general engineering is designed to provide students a technical degree with concentrations designed to meet the needs of the individual student. Not intended for a student who plans to work as a professional engineer, the general engineering degree allows a student to earn a technical degree while preparing for work or graduate study in fields such as law, medicine, business, or education.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the Undergraduate Core Curriculum requirements for the bachelor of science degree in engineering, students majoring in engineering must complete the minimum number of units and the specified requirements for their concentration.

Students majoring in engineering must complete a minimum of 189 units and the following requirements:

English

- ENGL 181, 182A, 182B

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- MATH 22 or AMTH 106
- One upper-division mathematics elective
- CHEM 11
- PHYS 31, 32, 33
- MECH 15, 15L

Engineering

- ENGR 1, 1L
- ENGR 110
- BIOE 10
- CENG 41, 43, 43L
- COEN 10 , 10L (or other approved programming course), 21, 21L
- ELEN 50, 50L, 115, 115L
- MECH 10, 10L, 11, 121

Design Sequence from one of the following options:

- BIOE 194, 195, 196
- COEN 194, 195, 196
- ELEN 194, 195, 196
- CENG 192A, 193, 194
- MECH 194, 195, 196

Electives

- 36 upper-division units defining a coherent concentration, selected in consultation with an academic advisor

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in general engineering:

- One course selected from COEN 10, 11, 44, 45, or other approved programming course together with the associated lab
- CENG 41
- ELEN 50, 50L
- MECH 10, 10L, 121
- Two courses selected from BIOE 10, CENG 10, CENG 43, COEN 12, (COEN 21 or ELEN 21), ELEN 33, ELEN 115, MECH 11, MECH 15, MECH 140, together with associated labs
- A two-course sequence selected from BIOE 153 and BIOE 154, CENG 115 and CENG 118, CENG 121 and CENG 143, COEN 70 and any upper-division COEN course, ELEN 100 and ELEN 110, ELEN 115 and (ELEN 116, 127, or 164), MECH 122 and MECH 132, MECH 123 and MECH 125, together with associated labs

LOWER-DIVISION COURSES: GENERAL ENGINEERING

1. Introduction to Engineering

Introduction to the different engineering disciplines. Interdisciplinary aspects of engineering. Engineering professionalism, ethics, and civic engagement. *Co-requisite: ENGR 1L.* (1 unit)

1L. Introduction to Engineering Laboratory

Laboratory for ENGR 1. *Co-requisite: ENGR 1.* (1 unit)

15. Environmental Quality Engineering

Behavior of chemicals in the environment. Environmental protection strategies. Environmental impact assessment. Risk analysis and economic considerations. Discussion of local, regional, and global environmental problems and alternative solutions. For non-engineering majors. *Prerequisite: MATH 6 or equivalent.* (4 units)

19. Ethics in Technology

Making the case for constructive ethical application of the most powerful technologies of the 21st century. Normative, principle-based ethical analysis of current and emerging technology in arenas including information, energy, biotech/medicine, military science, robotics, and agriculture. (4 units)

20. Topics in Robotics

Participate in a project-based, hands-on engineering project in a team-based environment. Gain exposure to sensing, actuation, and control techniques and components in the process of developing a robotic system or subsystem. *Prerequisite: Instructor permission required.* (1 unit)

25. Sustainable Energy Projects

Students learn the fundamentals of sustainable energy in a wide range of fields and carry out projects in these areas. Activities are normally associated with the Latimer Energy Scholars Program. May be repeated for credit. *Prerequisite: Instructor permission required.* (1–2 units)

60. Sustainable Electric Energy

This course explores the two-fold 21st-century challenges of the use and conservation of electric energy, and the sustainable generation of electric energy, primarily through the use of photovoltaic cells. The course includes a study of issues relating to the environment, economics, politics, and societal impact. Although physical and mathematical studies and analyses are a part of the course, no background in these areas is required beyond algebra. (4 units)

90. Engineering Competition Workshop

Workshop to develop aspects of an engineering school sponsored entry into an external competition (examples include Solar Decathlon and Tiny House). May include design, communication, construction, research, analysis, planning, documentation, fundraising, and other activities. Students will meet together to share information, brainstorm, collaborate, and make decisions, and will also work independently or in small teams in focused areas. (1 unit)

91. Architecture Workshop

Students will explore aspects of architecture with a particular emphasis on design related to an external contest. General topics may include design principles; form and function; space utilization; natural and artificial lighting; BIM and architectural documentation; and texture and color. Special topics may include sustainable building materials, LEED certification process, passive solar design, building integrated photo voltaics, and modular building techniques. (2 units)

98. Independent Study

Independent study of an approved engineering problem and preparation of a suitable project report. (1–4 units)

UPPER-DIVISION COURSES: GENERAL ENGINEERING

110. Engineering Projects for the Community

Students participate in engineering projects of interest to the local or international community. May be repeated for additional credit. (2 units)

111. STEM Outreach in the Community

Students conduct STEM activities in local schools. They work with individual K–12 students following lesson plans that are focused on engineering as a discipline and career choice. May be repeated for additional credit. (2 units)

125. Advanced Sustainable Energy Projects

Students study advanced concepts in sustainable energy and carry out complex projects, typically in a team environment. Activities are normally associated with the Latimer Energy Scholars Program. May be repeated for credit. *Prerequisite: ENGR 25 and instructor permission required.* (1–2 units)

136. Frugal Innovation Projects for Social Benefit

Students explore and apply the 10 core competencies of frugal innovation through case studies applied to mobile applications, low-cost diagnostics, frugal habitat, last-mile distribution and micro entrepreneurship, and learn how to design technologies and business models for social benefit. Student projects focus on real-world implementations with social enterprises in emerging markets. *Prerequisite: Junior standing or sophomores with instructor consent.* (2 units)

143H. Science, Religion and the Limits of Knowledge

The limits of scientific knowledge are examined in the framework of nonlinear system theory, metamathematics, and modern physics. The technical background developed in the course is used as a basis for exploring the relationship between science, aesthetics, and religion. Particular emphasis is placed on the rationality of faith, and on controversial questions where the views of scientists and theologians appear to conflict. *Prerequisite: MATH 12 or 31.* (4 units)

160. Nanotechnology and Society

This course examines the fundamental scientific and technological underpinnings of the important new field of nanotechnology; how both the understanding and the technological capabilities have evolved over the past century; and how nanotechnology proposes new applications that can address social and economic goals. An appreciation of the interaction between these goals and the evolution of the technology will be central to the course. Students will develop critical thinking about the prospects for nanotechnology in order to be able to assess the relevant ethical and social issues, and also the possibility and/or likelihood of the development of specific applications. (4 units)

170. Improv for Engineers

Through theatre games, improvisation, warm-up exercises, monologues, and scenes, students will learn the basics of Stanislavski's method of physical actions to learn the basic principles of acting and in the process increase self-confidence and an ability to collaborate. (1 unit)

171A. Product Opportunity Assessment

This course focuses on identifying and assessing opportunities for new products and services. Based on the principles of design thinking, it addresses the identification of problems by reviewing methods for understanding the needs and motivations of the customer. It also reviews the development of a validated and solution-independent need statement. (1 unit)

171B. Product Prototype to Test

This course introduces product prototyping strategies to allow students to test their design concepts with customers with the objective of validating assumptions regarding customer need and desired functionality/features. *Prerequisite: ENGR 171A or instructor permission.* (1 unit)

172A. Applied Entrepreneurship I

This is the first course in a two-course sequence in which students will explore an emerging technical market and develop specific viable business models to execute within the SCU educational program. Students will explore applications for the selected technology, identify customers/markets, and define a sustainable business model. Preferential admission may be given to students who have taken other courses in the school's innovation and entrepreneurship program. *Prerequisites: Sophomore standing or above, and instructor permission required.* (1 unit)

172B. Applied Entrepreneurship II

This is the second course in a two-course sequence in which students will explore an emerging technical market and develop specific viable business models to execute within the SCU educational program. Students will explore applications for the selected technology, identify customers/markets, and define a sustainable business model. *Prerequisites: ENGR 172A and instructor permission.* (1 unit)

173. Introduction to Business Fundamentals

This course serves as an introduction to fundamental business topics, to include basic economics, business forms and functions, reading simple financial statements, basic marketing concepts, and management

concepts. The course includes participation in an online business simulation. *Prerequisite: Sophomore standing or above.* (1 unit)

174. Financial Reporting and Decision Making

This course develops an understanding of financial statements and how they may be analyzed to assess the performance of an enterprise. The course also reviews capital markets and associated decision making for corporate operation. A business simulation allows students to apply principles of management, operations, marketing, and accounting to a business scenario. *Prerequisite: ENGR 173 or instructor permission.* (1 unit)

175. Introduction to Business Models

This course introduces students to the Business Model Canvas as a framework for describing and organizing the operational elements of a functional enterprise, whether it is a commercial or nonprofit entity. Topics include identifying customers and explicitly stating the value proposition, identifying value delivery mechanisms, articulating strategic partnerships, identifying key resources, and describing anticipated cash flow. (1 unit)

176. Marketing Strategy: Positioning and Messaging

This course reviews the strategic segmenting/targeting/positioning and practical messaging skills used in product marketing and thought leadership positions, which are core to entrepreneurial technology ventures. Specific topics include an overview of core marketing skillsets, practical examples of successful market segmentation and target selection, best practices for positioning and messaging creation, competitive landscape modeling and developing differentiation, translating customer requirements into effective positioning/messaging, and wholesale market (re-)definition. (1 unit)

177. Cultures of Innovation

This course introduces students to the skills, practices, and processes for understanding and managing innovation and entrepreneurship activities that span cultures throughout the world. These cultural challenges include developing a deep understanding of the needs of customers in emerging markets, producing goods and services with global teams, and outsourcing manufacturing operations. (4 units)

178. IP for Engineers

This course for engineering undergraduate students provides an overview of United States intellectual property laws, focused specifically on how those laws impact and apply to engineers. (1 unit).

180. Marine Operations

Introduction to the design, operation, deployment, piloting, and safety issues involving the use of underwater robots. *Prerequisite: Instructor permission required.* (1 unit)

181. Advanced Marine Operations

Technical operation, maintenance, and advanced piloting of underwater robots. Crew management. Operational and safety procedures. *Prerequisite: Instructor permission required.* (1 unit)

199. Directed Research/Reading

Investigation of an approved engineering problem and preparation of a suitable project report. Conferences with faculty advisor are required. *Prerequisite: Instructor permission required.* (1–5 units)

DEPARTMENT OF MECHANICAL ENGINEERING

Professors Emeriti: Mark Ardema, R. Ian Murray, Michel A. Saad
Professors: M. Godfrey Mungal (*Dean, Sobrato Professor of Mechanical Engineering*), Terry E. Shoup
Associate Professors: Mohammad A. Ayoubi, Drazen Fabris (*Department Chair*), Timothy K. Hight, Christopher Kitts, Hohyun Lee
Assistant Professors: On Shun Pak, Panthea Sepehrband

Mechanical engineering includes all aspects of design, development, control, and manufacture of mechanical systems and energy conversion systems. Mechanical engineering is essential to the proper design and manufacture of nearly every physical product in our modern world. As such, mechanical engineers are a fundamental resource for most industries, and they work in interdisciplinary environments. Mechanical engineers must have the ability to see both broad perspectives across disciplines and industries, and solve very local and specialized problems. The undergraduate curriculum addresses the education and training of mechanical engineering students and concentrates on two technical areas: (1) design and analysis of thermofluid systems for effective use of energy; and (2) design, analysis, and control of mechanical systems including the use of materials. The Mechanical Engineering educational program develops future engineers with a solid understanding of fundamentals and competence in analyzing engineering systems.

REQUIREMENTS FOR THE MAJOR IN MECHANICAL ENGINEERING

In addition to fulfilling the Undergraduate Core Curriculum requirements for the Bachelor of Science degree, students majoring in mechanical engineering must complete a minimum of 192 units and the following department requirements:

English

- ENGL 181, 182A, and 182B

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 106 or MATH 22
- AMTH 118
- CHEM 11/11L
- PHYS 31, 32/32L, 33/33L
- MECH 15/15L
- MECH 102 (required for students with an average GPA below 3.0 for MATH 13, MATH 14, AMTH 106) or an approved mathematics or natural science elective

Engineering

- ENGR 1/1L
- CENG 41, 43/43L
- COEN 44/44L or 45/45L
- ELEN 50/50L or PHYS 70
- MECH 10/10L, 11, 101L, 114, 115, 121, 122/122L, 123/123L, 125, 140, 141/141L, 142/142L, 160/160L, 194, 195, 196

Technical Electives

- 8 units of technical electives from approved upper-division or graduate engineering classes, with a maximum of 4 units from cooperative education

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Mechanical Engineering offers a combined degree program leading to the Bachelor of Science and a Master of Science open to mechanical engineering majors. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for the bachelor's degree and can complete the requirements for a master of science in mechanical engineering at the end of the fifth year.

Undergraduate students admitted to the combined degree program begin taking graduate classes during their senior year. They are required to enroll in the program between February of their junior year and December of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn the master of science degree, students must fulfill all the requirements for the degree, including the completion of 45 units of coursework beyond that applied to their bachelor's degree and completion of the master's thesis. No course can be used to satisfy simultaneously requirements for both the bachelor's degree and the master's degree.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in mechanical engineering:

Lower-Division Requirements

- COEN 44/44L or 45/45L
- CENG 41
- ELEN 50/50L
- MECH 10/10L

Lower-Division Electives (choose two)

- MECH 11
- MECH 140
- CENG 43/43L
- MECH 15/15L

Upper-Division Requirement

- MECH 121

Technical Sequence (choose one two-course sequence)

- MECH 122/122L and MECH 123/123L
- MECH 122/122L and MECH 132
- MECH 114 and MECH 115
- MECH 141/141L and MECH 142/142L

Note: Please be aware of the prerequisites for the technical sequence courses; this may influence your choice of lower-division courses.

REQUIREMENTS FOR THE MINOR IN AEROSPACE ENGINEERING

All undergraduates are eligible for the Aerospace Engineering minor. Students intending to earn this minor should seek advice from the Mechanical Engineering Department. Student must fulfill the following requirements for a minor in aerospace engineering:

- Two courses from the Fundamental Courses list
- MECH 145 and one course from the Aerospace Courses list
- At least 4 units from the Elective Courses list

Fundamental Courses

- MECH 140. Dynamics (4 units)
- CENG 43. Strength of Materials (4 units)
- MECH 121. Thermodynamics (4 units)
- MECH 122. Fluid Mechanics (4 units)

Aerospace Courses

- MECH 132. Aerodynamics (4 units)
- MECH 153. Aerospace Structures (4 units)
- MECH 155. Astrodynamics (4 units)
- MECH 158. Aerospace Propulsion Systems (4 units)

Elective Courses

- MECH 205/206. Aircraft Flight Dynamics I, II (4 units)
- MECH 220/221. Orbital Mechanics I, II (4 units)
- MECH 313. Aerospace Structures (4 units)
- MECH 371/372. Space Systems Design and Engineering I, II (8 units)
- MECH 431/432. Spacecraft Dynamics I, II (4 units)
- Another course from the Aerospace Courses list (4 units)

MECHANICAL ENGINEERING LABORATORIES

Research Laboratories

The *Robotic Systems Laboratory* is an interdisciplinary laboratory specializing in the design, control, and teleoperation of highly capable robotic systems for scientific discovery, technology validation, and engineering education. Laboratory students develop and operate systems that include spacecraft, underwater robots, aircraft, and land rovers. These projects serve as ideal testbeds for learning and conducting research in mechatronic system design, guidance and navigation, command and control systems, and human-machine interfaces.

The *Micro Scale Heat Transfer Laboratory (MSHTL)* develops state-of-the-art and thermal transport in thin films experimentation in processes such as micro-boiling and spray cooling. Today, trends indicate that these processes are finding interesting applications on drop-on-demand delivery systems, inkjet technology and fast transient systems

The *Materials Research Laboratory* supports interdisciplinary research efforts related to process-structure-property relations in engineering materials. Its principal activities focus on the characterization, quantitative analysis, and modeling of nano- and micro-structural evolution in materials during thermal and mechanical processing.

Undergraduate Laboratories

The *Computer-Aided Manufacturing (CAM) and Prototyping Laboratory* consists of two machine shops and a prototyping area. One machine shop is dedicated to student use for University-directed design and research projects. The second is a teaching lab used for undergraduate and graduate instruction. Both are equipped with modern machine tools such as lathes and milling machines. The milling machines all have two-axis computer numerically controlled (CNC) capability. The teaching lab also houses both a three-axis CNC vertical machining center (VMC) and a CNC lathe. Commercial CAM software is available to aid programming of the computer controlled equipment. The prototyping area is equipped with a rapid prototyping system that utilizes fused deposition modeling (FDM) to create plastic prototypes from CAD-generated models. Also featured in this area is a LaserCAMM CNC laser cutting system for nonmetallic materials.

The *Fluid Dynamics/Thermal Science Laboratory* contains equipment to illustrate the principles of fluid flow and to familiarize students with hydraulic machines, refrigeration cycles, and their instrumentation. The lab also contains a subsonic wind tunnel equipped with an axial flow fan with adjustable pitch blades to study aerodynamics. Research tools include modern nonintrusive flow measurement systems.

The *Heat Transfer Laboratory* contains equipment to describe three modes of heat transfer. The temperature measurement of the extended surface system allows students to learn steady state conduction, and the pyrometer enables measurement of emitted power by radiation. The training systems for heat exchanger and refrigeration system are also placed in the lab.

The *Instrumentation Laboratory* contains seven computer stations equipped with state-of-the-art, PC-based data acquisition hardware and software systems. A variety of transducers and test experiments for making mechanical, thermal, and fluid measurements are part of this lab.

The *Materials Laboratory* contains equipment for metallography and optical examination of the microstructure of materials as well as instruments for mechanical properties characterization including tension, compression, hardness, and impact testing. The Materials Laboratory also has a tube furnace for heat treating and a specialized bell-jar furnace for pour casting and suction casting of metallic glasses and novel alloy compositions.

The *Vibrations and Control Systems Laboratory* is equipped with two flexible test systems. One is capable of single- or multi-DOF modes, free or forced motion, and adjustable damping. The other is an inverted pendulum. Both systems can be controlled by a wide variety of control algorithms and are fully computer connected for data acquisition and control.

LOWER-DIVISION COURSES

10. Graphical Communication in Design

Introduction to the design process and graphical communications tools used by engineers. Documentation of design through freehand sketching and engineering drawings. Basic descriptive geometry. Computer-aided design as a design tool. Conceptual design projects presented in poster format. *Co-requisite: MECH 10L.* (4 units)

10L. MECH 10 Laboratory

Laboratory for MECH 10. *Co-requisite: MECH 10.* (1 unit)

11. Materials and Manufacturing Processes

The principles of manufacturing processes as related to materials properties, design and production. A review of structures, properties, and manufacturing processes for main groups of engineering materials including metals and metallic alloys, polymers, and ceramics. *Prerequisite: MECH 15.* (4 units)

15. Introduction to Materials Science

Physical basis of the electrical, mechanical, optical, and thermal behavior of solids. Relations between atomic structure and physical properties. *Prerequisite: CHEM 11. Co-requisite: MECH 15L.* (4 units)

15L. MECH 15 Laboratory

Laboratory for MECH 15. *Co-requisite: MECH 15.* (1 unit)

80. Solar Home Analysis and Design

Students will research technologies and design approaches relevant to solar powered homes. Topics may include capture and use of solar thermal energy, conversion of solar energy to electricity, and passive solar home design. Available and emerging technologies will be investigated, and analysis tools will be used to compare options. Other aspects of house design, such as windows, lighting, and appliance choice will also be examined, as well as architecture and system-level design. Successive offerings will build on the developed knowledge and expertise. Careful documentation will be stressed as well as optimizing the design within constraints. Course may be taken several times. (4 units)

UPPER-DIVISION COURSES

101L. Machining Laboratory

Practical experience with machine tools such as mills, lathes, band saws, etc. Basic training in safe and proper use of the equipment associated with simple mechanical projects. Laboratory. *Prerequisite: Senior standing. Co-requisite: MECH 194.* P/NP grading. (1 unit)

102. Introduction to Mathematical Methods in Mechanical Engineering

The application of mathematical methods to the solution of practical engineering problems. A review of fundamental mathematical methods and calculus of a single variable, multivariable calculus, ordinary differential equations, numerical methods, and basics of linear algebra. (4 units)

114. Machine Design I

Analysis and design of mechanical systems for safe operation. Stress and deflection analysis. Failure theories for static loading and fatigue failure criteria. Team design projects begun. Formal conceptual design reports required. *Prerequisites: MECH 10 and 15 and CENG 43.* (4 units)

115. Machine Design II

Continuation of MECH 114. Treatment of basic machine elements (e.g., bolts, springs, gears, bearings). Design and analysis of machine elements for static and fatigue loading. Team design projects completed. Design prototypes and formal final report required. *Prerequisite: MECH 114.* (4 units)

120. Engineering Mathematics

Review of ordinary differential equations (ODEs) and Laplace transform, vector, calculus, linear algebra, orthogonal functions and Fourier series, partial differential equations (PDEs), and introduction to numerical solution of ODEs. *Prerequisite: AMTH 106.* (4 units)

121. Thermodynamics

Definitions of work, heat, and energy. First and second laws of thermodynamics. Properties of pure substances. Application to fixed mass systems and control volumes. Irreversibility and availability. *Prerequisite: PHYS 32.* (4 units)

122. Fluid Mechanics

Fluid properties and definitions. Fluid statics, forces on submerged surfaces, manometry. Streamlines and conservation flow fields. Euler's and Bernoulli's equations. Mass, momentum, and energy analysis. Laminar and turbulent flows. Losses in pipes and ducts. Dimensional analysis and similitude. External flows. *Prerequisite: CENG 42 or MECH 140 (may be taken concurrently). Co-requisite: MECH 122L.* (4 units)

122L. MECH 122 Laboratory

Laboratory for MECH 122. *Co-requisite: MECH 122.* (1 unit)

123. Heat Transfer

Introduction to the concepts of conduction, convection, and radiation heat transfer. Application of these concepts to engineering problems. *Prerequisites: MECH 121, 122, and AMTH 118 or equivalent. Co-requisite: MECH 123L.* (4 units)

123L. MECH 123 Laboratory

Laboratory work to understand the concept of heat transfer. Practical experience with temperature and heat flux measurement. *Co-requisite: MECH 123.* (1 unit)

125. Thermal Systems Design

Analysis, design, and simulation of fluids and thermal engineering systems. Application of optimization techniques, life cycle, and sustainability concepts in these systems. *Prerequisite: MECH 123.* (4 units)

132. Aerodynamics

Fundamentals of aerodynamics. Governing Equations (mass, momentum, energy). Inviscid, incompressible flow applied to subsonic air flow: Laplace's equations and flow superposition, Kutta-Joukowski theorem and generation of lift. Incompressible flow over airfoils: Kutta condition, Kelvin circulation theorem. Lifting flow over arbitrary bodies. Incompressible flow over finite wings: downwash and induced drag. Introduction to fundamental principles of viscous flow and discussion of drag components. (4 units)

140. Dynamics

Kinematics of particles in rectilinear and curvilinear motion. Kinetics of particles, Newton's second law, energy and momentum methods. Systems of particles. Kinematics and kinetics of plane motion of rigid bodies, energy and momentum methods. Introduction to three-dimensional dynamics of rigid bodies. *Prerequisite: CENG 41. Co-requisite: AMTH 106.* (4 units)

141. Mechanical Vibrations

Fundamentals of vibration, free and force vibration of (undamped/damped) single degree and two-degree of freedom systems. Vibration under general forcing conditions. Determination of natural frequencies and mode shapes. *Prerequisites: MECH 140 and AMTH 106. Co-requisite: MECH 141L.* (4 units)

141L. MECH 141 Laboratory

Laboratory for MECH 141. *Co-requisite: MECH 141.* (1 unit)

142. Control Systems, Analysis, and Design

Introduction to system theory, transfer functions, and state space modeling of physical systems. Course topics include stability, analysis and design of PID, Lead/Lag, other forms of controllers in time and frequency domains, root locus, Bode diagrams, state space pole placement, and gain and phase margins. *Prerequisite: MECH 141. Co-requisite: MECH 142L.* (4 units)

142L. MECH 142 Laboratory

Laboratory for MECH 142. *Co-requisite: MECH 142.* (1 unit)

143. Mechatronics

Introduction to behavior, design, and integration of electromechanical components and systems. Review of appropriate electronic components/circuitry, mechanism configurations, and programming constructs. Use and integration of transducers, microcontrollers, and actuators. *Also listed as ELEN 123 and COEN 123. Prerequisite: ELEN 50. Co-requisite: MECH 143L.* (4 units)

143L. MECH 143 Laboratory

Laboratory for MECH 143. *Co-requisite: MECH 143.* (1 unit)

144. Smart Product Design

Design of innovative smart electromechanical devices and products. Topics include a review of the basics of mechanical, electrical, and software design and prototyping, and will emphasize the synthesis of functional systems that solve a customer need, that are developed in a team-based environment, and which are informed by the use of methodologies from the fields of systems engineering, concurrent design, and project/business management. Designs will be developed in the context of a cost-constrained business environment, and principles of

accounting, marketing, and supply chain are addressed. Societal impacts of technical products and services are reviewed. Enrollment is controlled in order to have a class with students from diverse majors. Offered every other year. *Prerequisites: Core Foundation-level natural science and mathematics, or equivalent; instructor permission required. Co-requisite: MECH 144L.* (4 units)

144L. MECH 144 Laboratory

Laboratory for MECH 144. *Co-requisite: MECH 144.* (1 unit)

145. Introduction to Aerospace Engineering

Basic design and analysis of atmospheric flight vehicles. Principles of aerodynamics, propulsion, structures and materials, flight dynamics, stability and control, mission analysis, and performance estimation. Introduction to orbital dynamics. Offered every other year. *Prerequisites: MECH 122 and 140. Co-requisite: MECH 121.* (4 units)

146. Mechanism Design

Kinematic analysis and synthesis of planar mechanisms. Graphical synthesis of linkages and cams. Graphical and analytical techniques for the displacement, velocity, and acceleration analysis of mechanisms. Computer-aided design of mechanisms. Three or four individual mechanism design projects. Offered every other year. *Prerequisite: MECH 114.* (4 units)

151. Finite Element Theory and Applications

Basic introduction to finite elements; direct and variational basis for the governing equations; elements and interpolating functions. Applications to general field problems: elasticity, fluid mechanics, and heat transfer. Extensive use of software packages. Offered every other year. *Prerequisites: COEN 44 or equivalent and AMTH 106.* (3 units)

151L. MECH 151 Laboratory

Laboratory for MECH 151. *Co-requisite: MECH 151.* (1 unit)

152. Composite Materials

Analysis of composite materials and structures. Calculation of properties and failure of composite laminates. Manufacturing considerations and design of simple composite structures. Knowledge of MATLAB or equivalent programming environment is required. Offered every other year. *Prerequisites: MECH 15, CENG 43, and COEN 44 or COEN 45.* (4 units)

153. Aerospace Structures

This introductory course presents the application of fundamental theories of elasticity and stress analysis to aerospace structures. Course topics include fundamentals of elasticity, virtual work and matrix methods, bending and buckling of thin plates, component load analysis, and airframe loads, torsion shear, and bending of thin-walled sections. *Prerequisites: CENG 43 and 43L.* (4 units)

155. Astrodynamics

This course provides the foundations of basic gravitation and orbital theory. Topics include gravitation and the two-body problem, position and time, orbit determination. Laplace and Gibbs methods, basic orbital maneuvers, lunar trajectories, and rocket dynamics. *Prerequisite: MECH 140.* (4 units)

156. Introduction to Nanotechnology

Introduction to the field of nanoscience and nanotechnology. Properties of nanomaterials and devices. Nanoelectronics: from silicon and beyond. Measurements of nanosystems. Applications and implications. Laboratory experience is an integral part of the course. *Also listed as ELEN 156. Prerequisites: PHYS 33 and either PHYS 34 or MECH 15. Co-requisite: MECH 156L.* (4 units)

156L. MECH 156 Laboratory

Laboratory for MECH 156. *Co-requisite: MECH 156.* (1 unit)

158. Aerospace Propulsion Systems

Fundamentals of air breathing and rocket jet propulsion. Gas dynamics fundamentals, review of thermodynamic relation. Basic theory of aircraft gas turbine engines, propulsive efficiency, and application of Brayton cycle to gas turbine engine analysis. Rocket engine nozzle configuration and design. Thrust Equation. Chemical rocket engine fundamentals. Solid versus liquid propellant rockets. *Prerequisites: MECH 121 and 122.* (4 units)

160. Modern Instrumentation for Engineers

Introduction to engineering instrumentation, sensors, electric circuits, computer data acquisition, hardware and software, sampling theory, statistics, and error analysis. Theory of pressure, temperature, acceleration, and strain measurement. *Prerequisites: MECH 123 and 141. Co-requisite: MECH 160L.* (4 units)

160L. MECH 160 Laboratory

Laboratory work spans the disciplines of mechanical engineering: dynamics, controls, fluids, heat transfer, and thermodynamics, with emphasis on report writing. Students will design their own experiment and learn how to set up instrumentation using computer data acquisition hardware and software. *Co-requisite: MECH 160.* (1 unit)

179. Satellite Operations Laboratory

This laboratory course reviews the physical principles and control techniques appropriate to communicating with, commanding, and monitoring spacecraft. Students learn to operate real satellite tracking, commanding, and telemetry systems, and to perform spacecraft-specific operations using approved procedures. Given the operational status of the system, students may conduct these operations on orbiting NASA spacecraft and interact with NASA scientists and engineers as part of operations processes. *Instructor permission required.* (1 unit).

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. May be taken for graduate credit. (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project after completing the co-op assignment. Approval of department co-op advisor is required. Letter grades are based on content and presentation quality of report. (2 units)

191. Mechanical Engineering Project Manufacturing

Laboratory course that provides supervised evening access to the machine shop and/or light fabrication area for qualified mechanical engineering students to work on their University-directed projects. Students wishing to utilize the machine shop or light fabrication during the evening lab/shop hours are required to enroll. Enrollment in any section allows students to attend any/all evening shop hours on a drop-in basis. Staff or faculty will be present during each scheduled meeting to supervise as well as be available for consultation and manufacturing advising. *Prerequisites: Students must be qualified for machine shop use through successful completion of MECH 101L and passing grade on the Mechanical Engineering Lab Safety Test. Qualifications for light fabrication area use: successful completion of the Light Fabrication Training Seminar and a passing grade on the Mechanical Engineering Lab Safety Test.* P/NP. (1 unit)

194. Advanced Design I: Tools

Design tools basic to all aspects of mechanical engineering, including design methodology, computer-design tools, simulation, engineering economics, and decision making. Senior design projects begun. *Prerequisite: MECH 115. Co-requisite: MECH 101L.* (3 units)

195. Advanced Design II: Implementation

Implementation of design strategy. Detail design and fabrication of senior design projects. Quality control, testing and evaluation, standards and specifications, and human factors. *Prerequisite: MECH 194.* (4 units)

196. Advanced Design III: Completion and Evaluation

Design projects completed, assembled, tested, evaluated, and judged with opportunities for detailed re-evaluation by the designers. Formal public presentation of results. Final written report required. *Prerequisite: MECH 195.* (3 units)

198. Independent Study

By arrangement with faculty. (1–5 units)

199. Directed Research/Reading

Investigation of an engineering problem and writing an acceptable report. Meetings with faculty advisor required. *Prerequisite: Senior standing.* (2–4 units)

INTERDISCIPLINARY MINOR

BIOENGINEERING

Director: Yuling Yan

Bioengineering is the fastest-growing segment of engineering today and holds the promise of improving the lives of all people in very direct and diverse ways. Bioengineering involves applying principles and practice from engineering to create new knowledge in medicine and to advance the diagnosis and treatment of disease. The minor in bioengineering (or biomedical engineering) is designed for those students who are interested in the field but are majoring in other disciplines, particularly science majors in the College of Arts and Sciences, students completing prerequisites for medical school during their undergraduate studies, and engineering majors.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in bioengineering:

Natural Science Courses

- BIOL 21, 24, 25 (or BIOE 21, 22)
- CHEM 11, 12, 13
- PHYS 31, 32, 33 (or PHYS 11,12,13)

Mathematics Courses

- MATH 11, 12, 13, 14

Bioethics Course

- One course from BIOE 180, BIOL 171, ENGR 19, PHIL 7, or TESP 157

Engineering Courses

- BIOE 10
- ELEN 50 or PHYS 70
- COEN 45 or COEN 44

Two courses from the following:

- BIOE 153, 154, 155, 161, 163, 172, 173, 174, 175, 176

6

University Programs

Most undergraduate academic programs at Santa Clara University are administered by the College of Arts and Sciences, the Leavey School of Business, or the School of Engineering. Although Aerospace Studies and Military Science are administered by the College of Arts and Sciences, their programs, which do not lead to a degree but rather to the opportunity for commissioning, are open to all Santa Clara students. The Science, Technology, and Society minor is administered by the Miller Center for Social Entrepreneurship. Other programs listed here are administered by the Office of Undergraduate Studies.

AEROSPACE STUDIES

Professor: Lieutenant Colonel Michael Pecher (*Chair*)
Assistant Professor: Captain Nicholas Carnovale
Assistant Professor: Captain Willis Hudson Jr.

Santa Clara University has an agreement with San Jose State University permitting Santa Clara students to enroll in a program leading to a commission as a Second Lieutenant in the United States Air Force (USAF). The Air Force Reserve Officer Training Corps (AFROTC) program offers a high-quality educational experience for college students in Air Force organization, history, officer skills, leadership and management, and national security policy and issues. Classes are offered on the San Jose State University campus.

Integral to the curriculum are mandatory leadership laboratories. These weekly two-hour experiences provide a dynamic environment in which cadets develop leadership and management skills by planning, organizing, directing, and coordinating exercises. Physical fitness is also an important component to our training program, students/cadets are expected to meet twice a week (2 hours) to participate in group physical conditioning.

LOWER-DIVISION COURSES

AERO 1A. and B. Foundations of the U.S. Air Force

AERO 1A and 1B introduces students to the United States Air Force and encourages participation in Air Force Reserve Officer Training Corps. Featured topics include an overview of the Reserve Officer Training Corps (ROTC), special programs offered through ROTC, mission and organization of the Air Force, brief history of the Air Force, introduction to leadership and leadership-related issues, Air Force Core Values, Air Force officer opportunities, and an introduction to communication studies. Leadership laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences. (1.5 unit per quarter)

AERO 2A. and B. Evolution of USAF Air and Space Power

AERO 2A and 2B examines general aspects of air and space power from a historical perspective. The course covers the period from the first balloons and dirigibles to the space-age systems of the global war on terror. Historical examples are provided to show the development of Air Force distinctive capabilities (previously referred to as core competencies), and missions (functions) to demonstrate the evolution of what has become today's USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension, e.g., principles of war and tenets of air and space power. As a whole, this course provides the students with a knowledge-level understanding for the general employment of air and space power, from an institutional, doctrinal, and historical perspective. In addition, what the students learned about Air Force Core Values in AERO 1A and 1B will be reinforced through the use of operational examples, and they will complete several writing and briefing assignments that must meet Air Force communication skills requirements. Leadership laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences. (1.5 unit per quarter)

UPPER-DIVISION COURSES

AERO 131A. and B. Air Force Leadership Studies

A study of leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course. One-year course. *Prerequisites: AERO 1A, B; AERO 2A, B; or as determined by Aerospace Studies Department Chair.* (4.5 units per quarter)

AERO 141A. and B. National Security Affairs/ Preparation for Active Duty

AERO 141A and 141B examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. A mandatory leadership laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles. One-year course. *Prerequisite or co-requisite: AERO 131A, B.* (4.5 units per quarter)

EXPERIENTIAL LEARNING FOR SOCIAL JUSTICE

Curriculum Manager: Andrea Brewster

The Experiential Learning for Social Justice (ELSJ) component of Santa Clara's Core curriculum cultivates social justice, civic life, perspective, and civic engagement. To echo the words of Father Kolvenbach: ELSJ provides Santa Clara students with opportunities for experiencing the gritty reality of the world, thinking critically about the world, responding to its suffering, and engaging it constructively.

The majority of courses satisfying the Core ELSJ requirement are offered by University academic departments and programs. However, students may also satisfy the requirement through a milestone or the following courses.

ELSJ 22. Solidarity with the Community

This course will explore what it means to live in solidarity with our local and global community. Students will strengthen their ability to work sensitively and respectfully with communities that are socially, economically, and/or politically marginalized or oppressed. Enrolled students will participate in a weekly community-based learning placement through Arrupe Partnerships for Community-based Learning, SCCAP, or a similar program where students are engaged with communities. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (2 units)

ELSJ 23. Careers for the Common Good

This course will expose students to social realities and injustices both locally and internationally, providing an understanding of the complex relations between privileged and marginalized groups. Through reflection, self-assessments, course speakers, Career Center resources, and a community-based learning placement, students will be able to articulate their interests and talents and the applications to particular needs in the world. Students will be given the tools and resources to pursue a career direction and make life decisions that are personally meaningful and socially beneficial. This course is appropriate for students in any major. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (2 units)

ELSJ 30. Discernment for Justice in the Jesuit Catholic Tradition

This course is offered in conjunction with the winter break Ecuador immersion provided through the Ignatian Center for Jesuit Education. Within the course, students will engage with themes such as the intersection of social justice and the Jesuit Catholic intellectual tradition, the relationship between faith and justice, the value and moral challenge of different economic systems, the preferential option for the poor, and discernment of vocation. This course will facilitate integration of the experience of immersion with lived experience upon return to Santa Clara and beyond. *Enrollment by instructor permission only.* (2 units)

ELSJ 50. Law and Social Justice

This course provides a theoretical, vocational, and legal doctrinal foundation for students interested in social justice law. The assigned reading offers an opportunity to consider the relationship between law and social justice in several different contexts, including the structure of the legal profession and the delivery of legal services; the efforts to achieve social justice and civil rights through litigation in areas such as work, subsistence, housing, voting, and education; the problem of access to courts and the role of the judiciary; and the role of lawyers working with community movements to effect social change. To ground these theoretical explorations in real-life practice, this course features a community-based learning

component, enabling students to interact with real people for whom these issues matter. This course satisfies both the ELSJ requirement and the Civic Engagement requirement, and qualifies as part of the Social Justice Pathway in the University's Core Curriculum. *Note: Enrolled students will participate in a weekly community placement through the Arrupe Partnerships for Community-based Learning. Also listed as ASCI 50.* (4 units)

ELSJ 134. Seminar in Social Entrepreneurship

Introduces keywords and concepts in social entrepreneurship; business plans and technology strategies used in this field; three economic sectors in which social entrepreneurship has been applied; and tools for reflection upon personal vocation. Prepares students for a summer immersion experience with social entrepreneurs, and for conducting ethnographic research overseas by developing the social and technical skills they will need to work with these enterprises. *Enrollment restricted to those selected as Global Social Benefit Fellows. Does not satisfy Core ELSJ requirement.* (5 units)

ELSJ 135. Research in Social Entrepreneurship

This course draws upon field experiences as global social benefit fellows to mentors students in reflection on their own personal development as leaders, and in the art and science of research. Weekly seminar will consist of fellows presenting their own research and reflections upon their vocation. Research projects will analyze the social impact of the entrepreneurs' work and the role technology plays in providing social benefit. Students will reflect upon their experience of engaging with the communities served by social entrepreneurs, and the implications for their own vocation. *Prerequisite: ELSJ 134.* (5 units)

ELSJ 198. Applied Ethics Internship: Healthcare

This course exposes students to ethical issues in a clinical setting. Students spend 5 hours per week completing rotations at O'Connor Hospital. In addition, students meet biweekly to discuss health care ethics. *Prerequisite: Students must complete the application process and be accepted into the internship program. Also listed as ASCI 198.* (5 units)

ELSJ 199. Independent Study: Solidarity with the Community

This course will explore what it means to live in solidarity with our local and global community. Students will strengthen their ability to work sensitively and respectfully with communities that are socially, economically, and/or politically marginalized or oppressed. Enrolled students will participate in a weekly community-based learning placement through Arrupe Partnerships for Community-based Learning, SCCAP, or a similar program where students are engaged with communities. *Note: This course requires participation in community-based learning (CBL) experiences off campus.* (5 units)

LEAD SCHOLARS PROGRAM

Director: Leilani M. Miller
Associate Director: Erin Kimura-Walsh

The LEAD (Leadership, Excellence, and Academic Development) Scholars Program provides first-generation University students with a smooth transition to life at Santa Clara. While special emphasis is placed on students' first year, this program supports and challenges participants throughout their four years at the University. The program is committed to fostering an atmosphere of successful scholarship, community engagement, and service.

1. LEAD Scholars Seminar

This fall course aims to assist LEAD Scholars in getting the most out of their University experience by developing the academic strategies and personal self-management skills essential for success at Santa Clara. Seminar discussions and exercises focus on a variety of topics including transitional issues, campus engagement, academic resources, and individual growth and development. *Reserved for LEAD Scholars only.* (2 units)

2. LEAD Scholars Seminar

The winter seminar aims to build upon the leadership development of LEAD Scholars and encourages application to campus leadership opportunities. Weekly seminar discussions and exercises focus on a variety of topics, including résumé writing, University involvement opportunities, and identity and diversity exploration, as well as spring quarter course registration meetings. *Reserved for LEAD Scholars only.* (2 units)

10. Difficult Dialogues

Explores contemporary controversies through case studies. Focuses on the meanings of dialogue and academic freedom through small group discussions and exercises. (4 units)

100. Advanced Difficult Dialogues

Students explore major local and global issues related to social, environmental, economic, and other problems. Research, presentations, and a project in their disciplines will help them reflect on how they can address these problems through their vocation. *Reserved for LEAD Scholars only.* (5 units)

ENGL 1A. and 2A. Critical Thinking & Writing I and II

A two-course, themed sequence for LEAD Scholars, featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. The second course will feature more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. Themes may address education and identity, science and society, and other topics. *Successful completion of CTW I (ENGL 1A) is a prerequisite for CTW II (ENGL 2A).* (4 units each quarter)

MILITARY SCIENCE PROGRAM

Professor: Lieutenant Major John Tiedeman (*Director*)
Assistant Professor: Captain Alberto Frias

The Military Science Program offers classes open to all Santa Clara students and the Bronco Battalion, an Army Reserve Officer Training Corps (ROTC) battalion of cadets from Santa Clara University, Stanford University, and San Jose State University. The Military Science Program is designed to develop management skills and leadership abilities for successful careers in both the corporate world and the military. Students who complete the ROTC program are eligible for appointment and commissioning as officers in the Army Reserve. Reserve commissions are tendered in all basic branches of the Army. A board of officers determines the branch in which students are commissioned based on their preference, leadership potential, academic background, and the needs of the service.

The military science core curriculum consists of six lower-division classes in the ROTC Basic Course and seven upper-division courses in the ROTC Advanced Course. Cadets may take a summer course (MILS 24) in lieu of the six lower-division courses. The professional military education of ROTC cadets consists of two components: a baccalaureate degree from Santa Clara University (or one of the cross-enrolled universities) and at least one undergraduate course from each of five designated fields of study. Prior to commissioning, cadets must take at least one course in military history.

The curriculum is divided into ROTC Basic Course requirements and ROTC Advanced Course requirements. To proceed to the ROTC Advanced Course classes, students must complete either the six required ROTC Basic Course classes or attend a summer class at Fort Knox, Kentucky. The director of the Military Science Program must approve exceptions to this progression.

ROTC Basic Course Requirements

The ROTC Basic Course, Fundamentals of Leadership and Management, includes the first-year and second-year courses (MILS 11, 12, 13, 21, 22, and 23) designed for beginning students who want to qualify for entry into the ROTC Advanced course and for those students who may want to try military science without obligations. A student can also qualify for entry in the ROTC Advanced Course by completing the summer training camp (MILS 24).

ROTC Advanced Course Requirements

The ROTC Advanced Course, Advanced Leadership and Management, consists of the third-year and fourth-year courses (MILS 131, 132, 133, 134, 141, 142, and 143) open to students who have completed or earned placement credit for the ROTC Basic Course.

Students must complete all courses numbered greater than MILS 130, to include MILS 134, a six-week Cadet Leader Course during the summer, in sequence, unless otherwise approved by the professor of military science. The ROTC Advanced Course qualifies students for commissions as officers in the U.S. Army. Students who do not desire to compete for a commission as an officer in the Army may take these courses for academic credit with approval by the professor of military science.

Leadership Laboratories

Leadership laboratories, held weekly for three hours, are required of all students. Performance during lab periods is reflected in the student's course grade. Labs include activities such as terrain navigation, first aid training, virtual battle simulations, drill and ceremonies, and tactical leader development exercises.

Laboratory and Field Exercises

During each quarter of class work, weekly lab work is required. Two off-campus exercises involving adventure training, leadership training, and survival skills are optional for non-scholarship ROTC Basic Course students. Two off-campus exercises focusing on leadership and military skills are mandatory for ROTC Advanced Course students and contracted students.

LOWER-DIVISION COURSES

11. Leadership and Personal Development

Introduces students to the personal challenges and competencies that are critical for effective leadership. Students learn how the personal development of life skills such as goal setting, time management, physical fitness, and stress management relate to leadership and officership. Students develop their own personal fitness program under the guidance of an Army master fitness trainer. Two 60-minute classes per week. One four-day weekend field exercise away from the University. Attendance to weekly three-hour leadership lab and one military formal dinner required. (3 units)

12. Foundations in Leadership I

An overview of leadership fundamentals such as goal setting, problem solving, listening, critical thinking, stress management, presenting briefs, providing feedback, and using effective writing skills. Students begin to explore leadership dimensions and values. Two 60-minute classes per week. Attendance to weekly three-hour leadership lab and one military formal dinner required. (3 units)

13. Foundations in Leadership II

An overview of the leadership framework with practical applications in fundamentals such as problem solving, listening, critical thinking, stress management, presenting briefs, and using effective writing skills. Students explore dimensions of leadership, values, attributes, skills, and actions in the context of practical, hands-on, and interactive exercises. Two 60-minute classes per week. One three-day weekend field training exercise away from the University. Attendance to weekly three-hour leadership lab and one military formal dinner required. (3 units)

21. Innovative Leadership

Explores the dimensions of creative leadership strategies and styles by studying historical cases and engaging in interactive exercises. Students practice aspects of personal motivation and team building within the context of planning, executing, and assessing team exercises. Focus will be on the continued development of the knowledge of leadership values and attributes through an understanding of organizational customs and courtesies. Leadership case studies provide tangible context for learning Individual Creeds and Organizational Ethos. One three-day weekend field exercise away from the University. Attendance to weekly three-hour leadership lab and one military formal dinner required. (3 units)

22. Leadership in Changing Environments I

Examines the challenges of leadership in complex contemporary operational environments. Dimensions of the cross-cultural challenges of leadership in a constantly changing world and their application to leadership tasks and situations. Case studies stressing importance of teamwork and tactics in real-world settings. One three-day weekend field exercise away from the University. Attendance to weekly three-hour leadership lab and one military formal dinner required. (3 units)

23. Leadership in Changing Environments II

Examines the decision-making process and plans/orders that enable small units to complete assigned tasks. Planning techniques used to develop orders and briefing plans and decisions. One three-day weekend field exercise away from the University. Attendance to weekly three-hour leadership lab and one military formal dinner required. (3 units)

24. Cadet Initial Entry Training Course

A four-week summer training camp at Fort Knox, Kentucky. Students receive pay, travel, lodging, and the Army defrays most meal costs. The course environment is rigorous and teaches skills required for success in the Army ROTC Advanced Course. No military obligation is incurred. Students must pass a physical examination (paid for by ROTC). Completion of MILS 24 qualifies a student for entry into the Advanced Course. Candidates can apply for a class seat anytime during the school year. Each Cadet who enters ROTC and contracts will attend this course if he/she has not already attended U.S. Army Basic Training. *Open to first-year students and sophomores who have not taken ROTC courses during the regular school year or for ROTC course alignment.* P/NP only. (4 units)

35. Special Topics: Foundations of Leadership in a Changing Environment

Examines specific topics dealing with leadership at the lieutenant level or challenges facing senior military leadership in the contemporary operating environment. *Prerequisite: Department chair approval.* (3 units)

UPPER-DIVISION COURSES

131. Adaptive Team Leadership

Challenges students to study, practice, and evaluate adaptive leadership skills as they are presented with the demands of the ROTC Cadet Leader Course. Challenging scenarios related to small unit tactical operations are used to develop self-awareness and critical thinking skills. Students receive systematic and specific feedback on their leadership abilities. Two 90-minute classes per week. Weekly three-hour labs. One mandatory three-day field training exercise away from the University. *Prerequisites: MILS 11, 12, 13, 21, 22, and 23, or consent of department chair.* (4 units)

132. Situational Leadership I

Study of intense situational leadership challenges to build student awareness and skills in leading small units. Skills in decision making, persuading, and motivating team members when "under fire" are explored, evaluated, and developed. Two 90-minute classes per week. Weekly three-hour labs. One military formal dinner. *Prerequisite: MILS 131 or consent of department chair.* (4 units)

133. Situational Leadership II

Practical applications of intense situational leadership challenges that will provide awareness and specific feedback on leadership abilities. Student skills are evaluated using practical applications in decision making, persuading, and motivating team members when "under fire." Aspects of military operations are reviewed as a means of preparing for the ROTC Cadet Leader Course. Two 90-minute classes per week. Weekly three-hour labs. One mandatory three-day field training exercise away from the University. *Prerequisite: MILS 132 or consent of department chair.* (4 units)

134. Cadet Leader Course

A six-week summer training course conducted at Fort Knox, Kentucky. Only open to (and required of) students who have completed MILS 131, 132, and 133. Students receive pay, travel, and lodging, and the Army defrays most meal costs. The course's environment is highly structured and demanding, stressing leadership at the small-unit level under various challenging circumstances. Although this course is graded on a P/NP basis only, the leadership and skill evaluations at the camp contribute to the subsequent selection process that determines the type of commission and career field of students upon graduation from ROTC and the University. (4 units)

141. Developing Adaptive Leaders

Students develop proficiency in planning, executing, and assessing complex operations; in functioning as a member of a staff; and in providing leadership performance feedback to subordinates. Students are given situational opportunities to assess risk, make ethical decisions, and provide coaching to fellow ROTC students. Students are challenged to instruct younger students. Students identify responsibilities of key staff roles and use situational opportunities to develop subordinates. Two 90-minute seminars per week. Weekly three-hour labs. One mandatory three-day weekend field training exercise away from the University. *Prerequisite: MILS 133 or consent of department chair.* (4 units)

142. Leadership in a Complex World I

Explores the dynamics of leadership in the complexity of current military operations. Students examine customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Aspects of interacting with nongovernmental organizations, civilians on the battlefield, and host nation support are examined and evaluated. Two 90-minute seminars per week. Weekly three-hour labs. One military formal dinner. *Prerequisite: MILS 141.* (4 units)

143. Leadership in a Complex World II

Significant emphasis is placed on preparing students for their first unit of assignment and transition to lieutenant. Case studies, scenarios, and exercises are used to prepare students to face the complex ethical and practical demands of leading as commissioned officers in the U.S. Army. Two 90-minute seminars per week. Weekly three-hour labs. One mandatory three-day weekend field training exercise away from the University. *Prerequisite: MILS 142.* (4 units)

176. Military History

A survey of the military and diplomatic aspects of American involvement in conflicts from the Anglo-Indian Wars to the present. One 180-minute class per week. *This course is only offered to ROTC cadets. Regular university students are not allowed to take this course.* (3 units)

199. Independent Study

Examine specific issues facing the U.S. Army as a directed study with the department chair only. Topic selected in consultation with the department chair. Issues of diversity in the military will be embedded in the topic. *Prerequisites: Approval of the department chair and must have completed all MILS classes.* (3 units)

SCIENCE, TECHNOLOGY, AND SOCIETY

Executive Director: Thane Kreiner
Director of Education: Keith Douglass Warner

Society is shaped by science and technology to such a profound degree that to be an effective leader or citizen one must understand, engage, and shape social, scientific, and technical forces. Yet many people compartmentalize science, technology, and society as if they were three separate and distinct domains of human experience, rather than understanding them as mutually interpenetrating and reciprocally shaping each other. The science, technology, and society minor seeks to cultivate a richer understanding of these three domains to foster scientific and technological leadership and citizenship in our contemporary world. Students are required to select one of three emphasis areas: information technology and society, science and technology for the common good, or science communication.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in science, technology, and society:

- Four classes in one of the three emphasis areas (information technology and society, science and technology for the common good, or science communication)
- Three additional classes approved as undergraduate science, technology, and society courses

Students must also attend or volunteer at four symposia, colloquia, or public events sponsored by the Miller Center for Social Entrepreneurship, and write brief critical summaries for a pass/no-pass evaluation by the minor advisor.

Information Technology and Society Emphasis

These classes address the role of computers, the Internet, and information technologies in modern society, and the transformative mutual influences in the relationships between society and these technologies.

- ACTG 134
- CSCI 3
- COMM 12
- ENGL 138
- HNRS 20S (Technology for Social Justice)
- MGMT 177
- OMIS 34
- PHIL 80
- SOCI 49, 149

Science and Technology for the Common Good Emphasis

These classes examine how science and technology can contribute to social benefit, especially the well-being of underserved communities. They investigate the factors internal to the development of science and technology, as well as the societal factors (e.g., cultural, political, economic) that favor their development and application of science and technology to enhance the well-being of all.

- ANTH 4, 5, 132, 133, 134, 135, 136, 140, 147, 189, 197
- BIOL 109, 135, 144, 159, 171, 197
- BUSN 150
- COMM 12, 149B, 164A, 176A
- ENGR 60, 160
- ENVS 10, 80, 115, 135, 144, 145, 153, 158
- HIST 123, 125, 179
- HNRS 20S (Technology for Social Justice)
- LBST 75
- MECH 144
- MUSC 180
- PHIL 80, 83, 140
- PHYS 5, 8
- PSYC 50, 83, 158
- PHSC 1, 28, 100, 120
- SOCI 49, 120, 149, 164
- WGST 116

Science Communication Emphasis

These classes examine how expert scientific knowledge has been and can be communicated to scientific and lay audiences. This includes communication within research communities, communication of scientific and technical information to the public, and science and technology communication policy. Science communication has been fueled by increased scholarly attention to the diffusion aspect of expert knowledge.

- ANTH 4, 5, 132, 133, 134, 135, 136, 140, 147
- BIOL 109, 135, 144, 159, 171
- COMM 12, 149B, 164A, 176A
- ENGL 138
- ENVS 10, 80, 115, 135, 144, 145, 153, 158
- HIST 123, 125, 179
- MUSC 180
- PHIL 80, 83, 140
- PHYS 5, 8
- PSYC 50, 83, 158
- PHSC 1, 28, 100, 120
- SOCI 49, 120, 149, 164
- WGST 116

SCU STUDY ABROAD

Santa Clara offers students opportunities to study abroad during four terms: summer, fall, winter, and spring. Many study abroad programs operate on a semester system with resulting units earned exceeding the usual maximum for courses completed on campus. Academic calendars abroad may differ significantly from the on-campus academic calendar at the University. Students should refer to the Academic Calendars Abroad section on the SCU Study Abroad website at www.scu.edu/studyabroad/students/policies/academics.cfm. Because the programs with which Santa Clara University is affiliated vary in length, SCU Study Abroad evaluates each program to determine the appropriate maximum and minimum units for the term. Approved programs offer students opportunities to integrate with the host culture and foster personal reflection in the context of rigorous study. Programs may allow students to pursue independent research, attend classes with local students, participate in community-based learning, or gain professional experience through academic internships, which, in turn, can serve as a basis for senior capstone projects.

During their first two years at Santa Clara, students build a foundation for the academic work they will pursue abroad. Students are encouraged to work with their academic advisor early to plan for study abroad, and to explore their goals with SCU Study Abroad staff in the Global Engagement Office. SCU Study Abroad values diversity and inclusion and encourages students from all backgrounds to apply for study abroad. In addition, Santa Clara students are strongly encouraged to pursue opportunities in traditionally underrepresented geographic areas of the world. The goal is for student learning in the approved programs to build on and extend the on-campus curriculum. Students from underrepresented academic disciplines such as the sciences, engineering, and fine and performing arts are strongly urged to apply.

SCU Study Abroad is a privilege and the application process is competitive. The selection process is designed to offer study abroad opportunities to students who have thoughtfully selected programs that will significantly advance their academic, personal, and professional goals. Students are strongly encouraged to study abroad for a summer, quarter, or semester in a country and academic environment that will enrich their overall college experience and engender responsible participation in a global, multicultural society.

Credit earned through SCU Study Abroad counts toward graduation requirements either as elective credit or, with appropriate approval, may fulfill major, minor, and Core requirements. Grades are calculated into the Santa Clara University GPA and all credit and grades appear on the Santa Clara University transcript. The University is committed to offering equal access to study abroad opportunities and therefore extends all available financial aid to students to support SCU Study Abroad during the fall, winter, and spring. However, matriculated students who study abroad while withdrawn from the University are ineligible for financial aid and scholarships, and financial aid is not available for summer study abroad programs.

The SCU Study Abroad application process involves two steps: (1) approval of the application by the Global Engagement Office; then (2) approval of a program-specific application by the study abroad program. In addition, participation is contingent upon satisfactory completion of all program prerequisites and related courses, satisfactory academic progress toward the student's major, and participation in SCU Study Abroad mandatory pre-departure orientation and re-entry meetings. Normally, students apply for

study abroad six months to one year prior to participation. During the selection process, the Global Engagement Office reviews applications with participation from faculty and staff from throughout the University. The Office reserves the right to redirect students to alternate programs due to institutional considerations.

To apply for study abroad, students must be admitted to degree status at the University, have declared a major with the Office of the Registrar, and expect to have completed a minimum of 88 quarter units by the start of the academic program abroad. Normally, students participate in SCU Study Abroad during their junior or senior year, but sophomores with extenuating academic circumstances may request an exception to the eligibility policy. Santa Clara requires a cumulative grade point average of 2.75 for off-campus study; requirements for individual programs may be more rigorous. Successful applicants will meet or exceed Santa Clara's requirements and that of their proposed program. Priority admission may be given to applicants for Santa Clara's own programs, including exchanges. Students must receive approval through the on-campus application process to receive credit for major, minor, or Core requirements completed through study abroad.

Students on disciplinary probation or any form of suspension are not eligible for any study abroad programs. Students who earn a grade of "D" or "F" in any course in the term preceding their program may become ineligible for off-campus study. Students must clear any outstanding balances with the Bursar's Office in accordance with the Bursar's Office payment schedule (see www.scu.edu/bursar/payment/) to remain eligible for participation. The University does not approve study in countries for which the U.S. Department of State (DOS) has declared a Travel Warning (see www.scu.edu/studyabroad/safety/). Withdrawn students who study abroad may be eligible to receive a maximum of 10 units of elective credit toward graduation requirements, in keeping with the University's policy on transfer credit, but no credit earned while withdrawn from the University may count toward a student's major, minor, or Core requirements. Students should consult the policies governing units taken at other institutions in Chapter 8, Academic and Administrative Policies and Regulations.

For detailed information about individual programs, including eligibility requirements, contact SCU Study Abroad at studyabroad@scu.edu or 408-551-3019, or visit the SCU Study Abroad website at www.scu.edu/studyabroad/. Students are urged to attend a Study Abroad 101 session to gain general information and to drop in for advising with SCU Study Abroad Staff in the Global Engagement Office, located on the first floor of Varsi Hall, for information about the competitive application process.

Current approved study abroad programs are listed on the SCU Study Abroad website at www.scu.edu/studyabroad/.

Note: Santa Clara University may be obliged to alter or eliminate programs at any time.

Santa Clara directly administers study abroad programs in El Salvador, Costa Rica, and Germany. The El Salvador is available to students enrolled in other universities; the programs in Costa Rica and Germany are available only to undergraduate students admitted to degree status at Santa Clara University.

El Salvador

Co-Directors: Kevin Yonkers-Talz, Trena Yonkers-Talz

The SCU Casa de la Solidaridad program in El Salvador is a summer or semester study abroad program. During the semester program, students integrate classroom learning with experiential community-based learning in marginal Salvadoran communities. Students live in community with other students as well as Salvadoran students and engage in community field placement projects for two full days per week. The summer program is designed for students interested in health professions. During the summer, students engage in a field-work placement four afternoons a week in either a hospital or clinic supervised by Salvadoran medical professionals. Students take one of two Spanish courses, depending on their language proficiency, and the field praxis course. For information about current courses offered, see www.scu.edu/studyabroad. The program is open to students from other Jesuit universities and other institutions with which Santa Clara University has an affiliation

Costa Rica

The Costa Rica summer program offers students an opportunity to experience the astounding biodiversity of Costa Rica's natural ecosystems while appreciating the challenges this small Central American nation faces in sustainably developing its economy and providing livelihoods for its people. Students enroll in two courses taught by Santa Clara University instructors and upon successful completion of the course requirements receive a total of 10 units of credit. Students have one week of pre-field instruction at Santa Clara, then spend three weeks studying in Costa Rica, staying at biological field stations or tourist facilities as well as doing brief home stays with Costa Rican families. Opportunities to meet Costa Ricans and other Latin American students, learn Spanish, and do community service complement the academic offerings, which focus on drawing, observing nature, understanding rainforest ecology, and learning about sustainable development and ecotourism.

Germany

The Germany summer program is located in the city of Freiburg. German language courses are offered in conjunction with the Department of Modern Languages and Literatures at Santa Clara University. In addition to the language courses, a course in contemporary German civilization is also offered. Lectures and seminars offer a survey of literary, linguistic, cultural, historical, political, legal, and social developments in Germany. Depending on individual language skills, summer course participants may attend afternoon lectures and seminars.

UNIVERSITY HONORS PROGRAM

Director: Leilani M. Miller

The University Honors Program provides Santa Clara's most able students with intellectual opportunities based in small, seminar-style classes. With no more than 17 students each, seminars emphasize analytical rigor, effective expression, and interaction among professors and students. In the classroom and elsewhere on campus, students enjoy a level of collaboration exceptional even at Santa Clara.

The University Honors Program comes in two levels. Level I is usually by invitation to admitted first-year students and includes a curriculum of 10 courses. Students who have established a grade point average of 3.65 after completing 32 units of study at Santa Clara may apply for admission to Level II. Six courses are required for students admitted at this level.

The course of study combines broadly based, liberal learning with depth of specialization in a major field. Honors program classes are designed to fit within the curricula of the humanities, natural and social sciences, business, and engineering. Possible majors include every undergraduate field in the University.

LOWER-DIVISION COURSES

11A. and 12A. Cultures & Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. *Successful completion of C&I I (HNRS 11A) is a prerequisite for C&I II (HNRS 12A).* (4 units each quarter)

20. Difficult Dialogues

This seminar-style course is devoted to the analysis from different perspectives of some issue, text, or problem in the area of a professor's expertise. This course, taken during the first or second year, will provide critical thinking skills and an opportunity for students to discuss and debate the toughest questions faced by society today. This course is required of all Honors students. (4 units)

ENGL 1H. and 2H. Critical Thinking & Writing I and II

A two-course, themed sequence for Honors students, featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. The second course will feature more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. Themes may address cultural comparisons, science and society, and other topics. (4 units each quarter)

UPPER-DIVISION COURSES

100. Honors Seminar

An advanced seminar usually on an interdisciplinary topic. May be repeated for credit when topic changes. *Enrollment limited to students in the University Honors Program.* (5 units)

101. Fellowship and Grad School Preparation

Seminar for those students interested in preparing for major fellowship competition (Fulbright, Rhodes, Marshall, Truman, Goldwater, etc.) and preparation for graduate school. *Open to all students. Also listed as ASCI 101.* (2 units)

120. Advanced Difficult Dialogues

This course is an upper-division version of HNRS 20 (Difficult Dialogues) and is primarily targeted to seniors. This course allows students to have deeper explorations and discussions of contemporary controversies based on the area of a professor's expertise. *This optional Honors course is limited to Honors students only.* (5 units)

199. Honors Program Thesis

Course credit for thesis or culminating project of the University Honors Program. *Enrollment limited to students in the University Honors Program.* (1 unit)

Note: The program also offers special courses and sections, at both the lower- and upper-division levels, through specific departments such as biology, chemistry, English, mathematics, philosophy, political science, and religious studies. There is an Honors Contract Course option whereby students may take a non-Honors course for Honors credit with approval from the director.

UNDERGRADUATE SUMMER SESSIONS

The Summer Sessions Office, located in the Drahmann Advising and Learning Resources Center, coordinates a comprehensive schedule of undergraduate courses in most of the academic departments from June through September. Summer Sessions invites students to reach their educational goals through the convenience of accelerated courses.

Over 160 summer courses are held on campus and online. Sessions are three, five, and 10 weeks in length. Eight (8) units constitutes full-time status for undergraduate students enrolled in summer courses. Content, prerequisites, and units of summer courses are equivalent to fall, winter and spring courses.

For information about summer opportunities to study abroad, contact SCU Study Abroad in the Global Engagement Office. For more details, see the Study Abroad website at www.scu.edu/studyabroad/.

Academic Regulations

Most of the academic regulations that apply in the fall, winter and spring quarters also apply to the summer terms. Courses taken during summer sessions are included in the records of matriculated Santa Clara University students for the determination of GPA, class level, honors, probation, and disqualification. Any student who is not permitted to register during fall, winter, or spring quarters (e.g., disqualified, suspension) may not enroll for summer courses at SCU.

Administrative Cancellation of Course Enrollment

The Administrative Cancellation of Course Enrollment policy is not in effect during the summer as it is during the fall, winter and spring quarters. Students who are officially enrolled in a class and fail to attend the first and any subsequent class meetings will remain enrolled in the class, and be responsible for paying all tuition and fees associated with the class. Students are responsible for dropping a course if they are unable to attend due to changes in the class schedule or personal obligations. Non-attendance does NOT relieve a student of the obligation to pay tuition and fees. In addition to paying full tuition and fees, an academic hold will be placed on the student's account to prevent any further registration transactions. Students who do not formally drop a class for which they are officially enrolled will receive an "F" grade for the course(s), and be liable for all tuition and fees incurred during the summer. Students must formally drop a course via eCampus or by submitting a Drop Form to the Enrollment Services Center prior to the published deadlines.

Auditing Courses

Non-SCU and non-degree seeking SCU students may not audit courses. Degree-seeking students may audit one course in addition to the summer sessions course load limit on a space available basis. Students will be charged a course audit fee. Permission to audit must be given by the instructor by the last day to add a class. Students should submit completed audit forms to the Enrollment Services Center by the last day to add a class.

Course Load Limits Policy/Overload Policy

There are NO EXCEPTIONS to the course load policy for summer sessions. Students who register for more than the maximum course load will be administratively withdrawn from the course that creates the overload. Students who add overload units in violation of this policy may not receive credit for the course that causes the policy violation.

The intensive pace of Sessions 1, 2, and 3 require the following restrictions on summer course loads:

- Session 1: Students may not enroll in or attend more than two courses at any time during this session (maximum of 10 units).
- Session 2: Students may not enroll in or attend more than two courses at any time during this session (maximum of 10 units).
- Session 3 (A, B, and C): Students may not enroll in or attend more than one Session 3 lab science (Chemistry or Physics) course at a time. If enrolled in or attending a Session 3 lab science course, students may not be simultaneously enrolled in or attending any Session 1, 2, or 4 course. If enrolled in or attending a Session 3 non-lab science course, students may be simultaneously enrolled in or attend no more than one course during Session 1, 2, or 4.

Course Cancellations

Santa Clara University reserves the right to make changes in the schedules or policies without prior notice or obligation. If a course is canceled, the Summer Sessions Office will immediately send a notification to your @scu.edu address. Please check your SCU email frequently.

Enrollment and Course Restriction Policy

Students may not sit in classes without formally enrolling. Credit is not given to students who attend class without formally enrolling and paying tuition. Students must be officially registered in classes based on the procedures outlined on the Summer Sessions website and must have paid all tuition and fees by the published deadlines. The instructor's signature on an add form after the add period does not constitute a formal enrollment without tuition payment. Initial registration or class additions will not be accepted beyond the late registration/add period as set forth in the Summer Sessions calendar.

Students who enroll in a course for which they are not eligible are subject to administrative withdrawal from that course. This includes:

- Students who have not satisfied course prerequisites
- Students who have not obtained the instructor's permission as specified in certain courses

Independent Study

Eligible Santa Clara University juniors and seniors may pursue independent study with the approval of a faculty member. Interested students should review the Independent Study section in the *Undergraduate Bulletin* for additional information.

Internships

Interested current Santa Clara University students should inquire with individual departments and programs for information about summer internships.

New Fall Transfer Students

Transfer students who have been accepted at Santa Clara University for the fall quarter should contact the Drahmann Advising and Learning Resources Center at 408-554-4318 before registration to receive academic advising.

Incoming First-year Students

Incoming first-year students are not eligible to enroll in summer sessions unless they are participating in an eligible University summer program.

7

Admission of Undergraduate Students

Santa Clara University is a selective admission university that admits new students based on past performance and potential for future academic success and contribution to the campus community consistent with the mission and Jesuit tradition of the University. Applicants are admitted as full-time, degree-seeking students. Santa Clara does not have a part-time undergraduate program option and does not enroll non-degree students except under the limited conditions outlined in Chapter 8, Academic and Administrative Policies and Regulations.

Entering first-year and transfer students are admitted for fall and winter terms. Students are admitted for spring term only by special exception with the approval of the dean of admission.

Entering first-year students are admitted to the University and to a specific school based on the preference indicated on their admission application. Students wishing to change schools may apply for a transfer only at the end of their first year of attendance.

ADMISSION OF ENTERING FIRST-YEAR STUDENTS

Admission of applicants to Santa Clara University as entering first-year students is based on their academic record in high school including course rigor, results on standardized tests, and other criteria outlined below. While Santa Clara University does not have a specific high school grade point average or standardized test score requirement, potential for successful academic performance in the rigorous undergraduate program at Santa Clara is highly correlated with academic performance in high school in challenging courses and the results on standardized tests. Santa Clara also bases admission on demonstrated potential for contribution to the campus community consistent with the mission and Jesuit tradition of the University, but only after assessment of academic performance and potential.

Applications for admission as an entering first-year student are evaluated using the following criteria:

- Overall quality of high school courses and appropriately challenging coursework
- Academic performance in high school, including the cumulative grade point average from the first year of high school through the junior year of high school (grades from the first term of the senior year may also be included)
- Results of standardized tests (SAT I or ACT)
- One teacher evaluation from an 11th or 12th grade core academic class
- Involvement in school and community activities

The basic subject recommendations for admission as an entering first-year student include:

- History and Social Science: 3 years
- English: 4 years
- Mathematics: 3 years required; 4 years recommended
- Laboratory Science: 2 years required; 3 years recommended
- Language other than English: 2 years required; 3 years recommended; 4 years preferred
- Visual and Performing Arts: 1 year recommended
- College Preparatory Electives: 1 year

Admission to first-year student standing at Santa Clara depends on a continued high level of performance during the remainder of the applicant's senior year in the curriculum provided on the application and upon receipt of a high school diploma. If a significant change occurs in the applicant's academic performance during the senior year, his or her admission status may be reevaluated by the University.

EARLY DECISION PROGRAM

Applicants to the Early Decision Program must submit complete applications by November 1 of their senior year. Early Decision applicants are notified of the final admission decision by the end of December. Santa Clara's Early Decision Program is a binding program that requires commitment and confirmation of intent to enroll by those admitted under this program. Financial aid awards will be sent to admitted students who meet deadlines for filing required forms. Deposits must be received by January 7. After admission, all applications for admission to other colleges or universities must be withdrawn. Some Early Decision applicants who are competitive but not clearly admissible will be deferred and evaluated with other applicants under the Regular Decision Program. Students denied under the Early Decision Program may not reapply under the Regular Decision program for the same academic year.

EARLY ACTION PROGRAM

Applicants to the Early Action Program must submit their applications by November 1 of their senior year. Early Action applicants are notified of the admissions decision by the end of December. Santa Clara's Early Action Program is nonbinding; consequently, students admitted under the Early Action Program are not required to withdraw other college applications and have until May 1 to confirm enrollment at Santa Clara. Some Early Action applicants who are competitive but not clearly admissible will be deferred and evaluated with other applicants under the Regular Decision Program. Students denied under the Early Action Program may not reapply under the Regular Decision Program for the same academic year.

REGULAR DECISION PROGRAM

Applicants to the Regular Decision Program must submit their applications by January 7 of their senior year. Regular Decision applicants are notified of the admission decision by the first week of April and have until May 1 to confirm enrollment at Santa Clara.

APPLICATION PROCEDURE

Prospective first-year students must submit the following application materials to be considered for admission to Santa Clara:

- The Common Application
- The Santa Clara supplement to the Common Application
- Application fee
- One teacher evaluation
- The secondary school report
- Official high school transcript
- Official SAT I or ACT scores
- Mid-year report (Regular Decision applicants)

ADMISSION OF TRANSFER STUDENTS

Santa Clara University admits a limited number of transfer students for fall and winter quarter enrollment, principally at the sophomore and junior levels, based on potential for academic success and contribution to the campus community consistent with the mission and Jesuit tradition of the University. Admission of applicants to Santa Clara University as entering transfer students is based on their academic record at other colleges or universities in conjunction with evaluation of an official high school transcript and other criteria outlined below. While Santa Clara University does not have a specific grade point requirement, potential for successful academic performance in the rigorous undergraduate program at Santa Clara is highly correlated with prior academic performance in challenging courses. Santa Clara also bases admission on demonstrated potential for contribution to the campus community consistent with the mission and Jesuit tradition of the University. Transfer applicants for fall term are notified of the admissions decision on a rolling basis until enrollment capacity has been reached.

Applicants for admission to Santa Clara University as entering transfer students must have completed at least 8 semester or 12 quarter transferable units at an accredited college or university. Applicants with fewer than 8 semester or 12 quarter transferable units at the time of application should follow the application procedure for entering first-year students. Note that if a transfer applicant has not already completed 30 semester or 45 quarter transferable units when the application is submitted, he or she will be required to submit an official SAT I or ACT score report.

Only courses that are transferable to Santa Clara are considered in the grade point average calculation. Course selection and consistency of performance by the applicant are also considered. Applicants on academic or disciplinary probation or suspension at another institution are not considered for admission.

RECOMMENDED COURSES FOR TRANSFER STUDENTS

Applicants for admission to Santa Clara University as entering transfer students enhance their chances for admission by completing as many courses that fulfill the Santa Clara Core Curriculum requirements as possible before transferring. Preference will be given to students who have completed the following courses:

College of Arts and Sciences

- English Composition (2 semesters or 2 quarters)
- College-level Mathematics
  - (2 semesters or 2 quarters for bachelor of science)
  - (1 semester or 1 quarter for bachelor of arts)
- Natural Science with a Lab (1 semester or 1 quarter)

Leavey School of Business

- English Composition (2 semesters or 2 quarters)
- Calculus and Analytic Geometry (2 semesters or 2 quarters)
- Accounting (2 semesters or 3 quarters)
- Microeconomics and Macroeconomics

School of Engineering

- English Composition (2 semesters or 2 quarters)
- Calculus and Analytic Geometry (2 semesters or 3 quarters)
- Chemistry (1 semester or 1 quarter)
- Physics (2 semesters or 3 quarters)

TRANSFER CREDIT

Entering transfer students generally receive credit after admission for courses from other colleges and universities that are similar to courses offered at Santa Clara University.

- Courses from accredited institutions are generally transferable if they are similar in nature to courses listed in the Santa Clara University *Undergraduate Bulletin.*
- Courses from California community colleges are also generally transferable under the same conditions and if designated as transferable to the University of California.
- Courses from colleges not accredited, trade schools, extension programs, or correspondence programs do not transfer.

Transfer credit is awarded only for courses in which the student earned a grade of "C" or better. Courses taken on a pass/no pass or credit/no credit basis are not eligible for transfer. Students may transfer a maximum of 58.33 semester or 87.5 quarter units to the College of Arts and Sciences or the Leavey School of Business. The School of Engineering will grant credit for up to one-half of the degree requirements toward the major.

APPLICATION PROCEDURE

Prospective transfer students must submit the following application materials to be considered for admission to Santa Clara:

- The Common Application for Transfer Admission
- The Santa Clara supplement to the Common Application
- Application fee
- One instructor evaluation
- Official transcripts from all colleges and universities attended
- Official high school transcript
- Mid-term report (upon request)

ADMISSION OF INTERNATIONAL STUDENTS

Santa Clara University admits international students using the same general criteria for entering first-year students and entering transfer students described in the two preceding sections. There are additional admission requirements for international students that are outlined below. In order to be eligible for enrollment, an international applicant must be accepted as a full-time, degree-seeking student.

TRANSCRIPTS

All foreign university level transcripts must be evaluated through a NACES certified credential professional evaluation service that will provide a course by course evaluation and grade point average for course work completed outside of the United States. Secondary school transcripts must be submitted as official documents and a certified English translation of all secondary school documents must be provided at the time of application.

ENGLISH PROFICIENCY EXAMINATIONS

International applicants and permanent residents must submit the results of at least one of the following tests when English is not their first language: Test of English as a Foreign Language (TOEFL) exam, International Test of English Proficiency (iTEP) exam, International English Language Testing System (IELTS) exam, Pearson exam, or Michigan English Language Assessment Battery (MELAB). The minimum acceptable TOEFL score is 90 (Internet based) or 575 (paper based). The minimum iTEP score is 4.5. The minimum accepted IELTS score is 6.5. The minimum accepted Pearson score is 61. The minimum MELAB is 82. College-level English courses cannot be used to satisfy the English Proficiency requirement.

Exceptions are granted for the following: Applicants whose native language is English, or attended their entire secondary school career at a school where English was the language of instruction, or achieved a 630 on the Critical Reading section of the SAT or 28 on both the ACT Reading and English sections.

FINANCIAL CERTIFICATION AND SPONSORSHIP

For the purpose of admission, all international students are required to submit the Santa Clara University Financial Resource Statement and supporting documents. Santa Clara University is need-aware for international students as no need-based financial aid will be offered. International first year students are eligible for merit scholarship consideration.

Santa Clara University is certified to issue the I-20 required for an F-1 student visa to study in the United States. To secure an I-20, an international student must be admitted and deposited to the university and show adequate proof of ability to meet all academic and personal expenses while in the United States.

8

Academic and Administrative Policies and Regulations

STUDENT RESPONSIBILITY

Students are personally responsible for knowing all academic and administrative policies and regulations affecting their program of study and for abiding by all such policies and regulations during their period of enrollment at the University. Continued enrollment is subject to compliance with the academic and administrative policies and regulations as described herein and otherwise published by the University. Failure to understand the policies and regulations does not relieve a student of the responsibility for adhering to the policies and regulations.

ACADEMIC POLICIES AND REGULATIONS

DEGREE REQUIREMENTS

Candidates for an undergraduate degree at Santa Clara University must complete all requirements for a bachelor's degree as set forth by the University, their college or school, and academic departments or programs. Failure to understand those requirements does not relieve a student of their responsibility.

The requirements for a bachelor's degree include:

- Completing a minimum number of quarter units as specified below for each degree, no more than half of which may be satisfied with approved transfer credit
- A minimum of 175 quarter units for the bachelor of arts or bachelor of science in the College of Arts and Sciences (a minimum of 197 quarter units for engineering physics majors)
- A minimum of 175 quarter units for the bachelor of science in commerce in the Leavey School of Business
- The minimum number of quarter units specified by the major department for the bachelor of science in the School of Engineering
- Completing a minimum of 60 quarter units of upper-division courses
- Attaining a minimum grade point average of 2.0 for all courses completed at Santa Clara University and for all courses in the academic major and any academic minor
- Meeting the residency requirement of a minimum of 45 units at the Santa Clara campus after achieving junior standing

- Fulfilling the Core Curriculum requirements in effect at the time of initial enrollment
- Fulfilling the requirements for any declared academic majors and minors, including associated college or school requirements
- Submitting a completed Candidacy Petition for the Bachelor's Degree form according to the deadlines and procedures published by the Office of the Registrar

Academic Majors

Students must complete the requirements for a primary academic major in the College of Arts and Sciences, Leavey School of Business, or the School of Engineering, including the Core Curriculum and college or school requirements, to receive a bachelor's degree. Requirements for academic majors can be found under the departmental listings in the chapters for each respective college or school.

Students must declare their primary academic major by the end of the sophomore year. Students may declare a major at the time of initial matriculation, except in the Leavey School of Business where declaration of a major is normally made during sophomore year. Students who initially matriculate without a declared major must obtain the approval of the department chair of the intended major and submit a Program Petition form to the Drahmann Center. Students participating in study abroad or domestic public sector study programs must declare a major before participating in the program.

Students may declare a second academic major in addition to their primary major; however, students in the Leavey School of Business may only declare a second major in the College of Arts and Sciences or the School of Engineering. Students who want to declare a second major must obtain the approval of the department chair of the intended major and the college/school for the second major if different from the student's primary major and submit a Program Petition form to the Drahmann Center. To be awarded a second major, a student must complete all requirements of the Core Curriculum, college or school, and departmental requirements for that major. Requirements for a second major are as binding as those of a primary major and must be completed before a degree will be awarded. If a student decides to drop a second major, he or she must submit a Program Petition form to the Drahmann Center.

Academic Minors

Students may declare an academic minor from among the departmental minors offered through the college or schools, the general minor in engineering, or one of the interdisciplinary minors offered by the University. Requirements for the academic minors can be found in the chapters of the respective college or school in this *Bulletin*.

Students who want to declare an academic minor must obtain the approval of the department chair or program director of the intended minor and submit a Program Petition form to the Drahmann Center. Some minors may require an application process and are limited based on space available. To be awarded a minor, a student must complete all requirements of the minor as prescribed. Requirements for a minor are binding and must be completed before a degree will be awarded. If a student decides to drop a minor, he or she must submit a Program Petition form to the Drahmann Center.

Second Bachelor's Degree

A student may earn a second bachelor's degree at Santa Clara University, but may not duplicate a degree (i.e., bachelor of arts, bachelor of science in a natural science, bachelor of science in a social science, bachelor of science in commerce, bachelor of science in engineering). Students whose first degree is from Santa Clara and who are interested in pursuing a second bachelor's degree concurrently or without interruption must have an academic record showing a strong probability of success and a proposed program of study for the second degree that fulfills the degree requirements in effect at their original date of matriculation. At least half of the units for the second degree must be in addition to those required for the first degree and must be completed through a Santa Clara program. Approval to pursue a second bachelor's degree must be granted by the Dean of Academic Support Services and filed with the Office of the Registrar.

If a student is returning to the University after an absence, they must meet the criteria outlined above, but is subject to the degree requirements in effect at the time of re-entry. Approval from the Dean of Academic Support Services is required to resume studies for a second degree after an absence.

Students whose first degree is from an institution other than Santa Clara must submit a formal application for admission to the Office of Undergraduate Admissions. The application must specify that the second degree will not duplicate any other degree. Students admitted for a second bachelor's degree are subject to the degree requirements in effect at the time of admission. At least half the units required for the second bachelor's degree must be earned through a Santa Clara program.

Graduation with Honors

Candidates for a bachelor's degree with a grade point average between 3.50 and 3.69 graduate cum laude (with honors); candidates with a grade point average between 3.70 and 3.89 graduate magna cum laude (with high honors); and candidates with a grade point average of 3.90 or higher graduate summa cum laude (with highest honors). Awarding of honors is based on all graded undergraduate courses attempted at Santa Clara University and courses taken elsewhere that are counted toward the fulfillment of a student's degree. Honors will not be awarded above those merited by the student's record at Santa Clara. An indication of honors at graduation contained in the commencement program is unofficial. The final determination will be made after a review of all completed undergraduate courses counted toward the degree.

Participation in Commencement

To participate in commencement, candidates for a bachelor's degree must have completed all degree requirements (or must have 10 or fewer units to complete) and a minimum overall grade point average of 2.0 as well as in all courses in their academic major(s) and academic minor(s). Candidates must clearly demonstrate that all course work will be completed either summer or fall of 2016 and must have completed and submitted a Candidacy Petition for the Bachelor's Degree form to the Office of the Registrar.

ACADEMIC PROGRAM POLICIES AND REGULATIONS

Course Numbering and Course Credits

Lower-division courses are numbered 1 through 99, and upper-division courses are numbered 100 through 199. In the College of Arts and Sciences and the Leavey School of Business, most lower-division courses carry 4 units of academic credit and most upper-division courses carry 5 units of academic credit. In the School of Engineering, unit values for courses vary according to the number of hours in class per week.

Credit Unit Policy

Academic work at Santa Clara University is measured by credit unit. A unit of credit represents that amount of time and effort both within and outside of formal settings that a student devotes to a particular class. At the undergraduate level, one unit of credit represents approximately three hours of work per week per term by the student, including time engaged in class and time committed to class preparation, studying, and assigned projects.

A unit of credit for laboratory courses, independent study, internships, practica, and study abroad is awarded on the same basis as for a lecture course: one unit of credit represents approximately three hours of work per week per term by the student.

At the graduate level, course credit is determined by the college or school and is consistent with practices in the disciplines.

Change of Academic Major

A change of major within the same school or college requires the approval of the relevant department chair or program director. Students wishing to change their academic major within a school must submit a Program Petition form to the Drahmann Center.

Change of School

Entering first-year students are admitted to the University and to a specific school based on the preference indicated on their admission application. Students wishing to change schools within the University may not apply for such a change until the end of their first year of attendance.

Changes between schools may be limited by the availability of space within the school and the specific academic major. Students wishing to change schools must meet the admittance criteria of the school and complete the application process specified by that school. Upon acceptance by the school, the student must submit a completed Program Petition form to the Drahmann Center.

Repetition of Courses

Students may only repeat a course in which they have received a grade of less than "C–." In such cases, the grades of both the original and the repeated course are included in the calculation of the student's grade point average, but units are awarded toward graduation only once for each course passed. Certain courses, such as special topics courses and performance courses, are repeatable, and students will receive a grade and units for each successful completion. Students should consult the chair of the department in which the course is offered to confirm that a given course may be repeated for credit.

Independent Study

Students may pursue independent study through directed reading, directed research, internships, practica, or cooperative education. To qualify, a student must have demonstrated a sufficient knowledge of the academic discipline involved to make independent study both possible and beneficial. No more than 20 units of independent study may be used to satisfy graduation requirements, and no more than 5 units of independent study may be taken per term. Students must enroll for the term in which the independent study occurs.

Directed reading and directed research are limited to upper-division students who undertake a research project or other well-defined study beyond the scope of a regular course under the supervision of a faculty member. Such work should be comparable to that required for courses of equivalent unit value.

Students can obtain practical learning experience through internships, cooperative education, and practica. Internships and cooperative education are approved work experiences in a non-classroom environment in industry, government, or other setting, generally available only to upper-division students. Students who enroll in an internship or cooperative education experience for academic credit must fulfill specified academic requirements in addition to the responsibilities expected by the organization hosting the internship or cooperative education experience. Practica provide practical experience in a discipline-specific field experience or an approved University program activity, such as participation on the school newspaper. Practica are generally available only to upper-division students, but some practicum experiences are available to lower-division students who meet specified eligibility criteria.

Students wishing to enroll in an independent study course must initiate the request for independent study with the appropriate faculty member, or with the Career Center for cooperative education experiences. The appropriate form, with the required materials and other approvals, must be submitted to the Drahmann Center for final approval prior to registering for the course.

Challenging Courses

Students may challenge certain courses to satisfy specific subject requirements for graduation. A student may petition to challenge any course listed in the *Undergraduate Bulletin* except those involving laboratory, studio, or specialized group work and those whose descriptions in the catalog are followed by the letters NCX. No more than one course may be challenged each term. Although course requirements may be fulfilled by challenging a course, a successful challenge neither earns units toward the total needed for graduation nor contributes to the fulfillment of the residency requirements.

In order to be eligible to challenge a course, a student must have completed at least one term at Santa Clara, have a cumulative grade point average of at least 3.3, and receive permission of the faculty member and the chair of the department in which the course is offered. Only currently enrolled students are eligible to challenge a course.

To challenge a course, the student takes a special examination on the material covered by that course and meets any additional requirements specified by the department chair. Challenge examinations are arranged by the department chair, after the student files a Petition for Credit by Examination with the Office of the Registrar and pays the applicable fee.

Undergraduate Class Attendance Policy

Students are responsible for completing all course requirements as set forth by the instructor. Class attendance expectations and consequences for absences from class are left to the discretion of individual instructors subject to restrictions imposed by law, including, but not limited to, policies associated with the Americans with Disabilities Act As Amended (ADAAA) and Title IX of the Education Amendments of 1972 (Title IX) (see below). The instructor's policies will be communicated clearly in writing. Students are accountable for all course assignments, whether or not the assignments were announced during an absence, and for meeting assigned deadlines, even when the deadline falls on the day a student is absent from class. For details on grading, see the Grading Policies and Regulations section in this chapter.

In certain situations involving unavoidable absence, students may be offered the opportunity to make up a missed assignment/activity or to complete an alternative assignment, unless the design of the course offers no opportunity for in-class work to be made up. These include both foreseen and unforeseen documented and verified situations such as:

- Serious personal illness
- Death of immediate family member
- Participation in significant religious observances
- Participation in events or activities as official representatives of Santa Clara University

In cases of unforeseen, unavoidable absence, students should contact the instructor as soon as possible. Under certain circumstances, the Cowell Center or the Office of Student Life may contact the instructor on behalf of the student.

In cases of foreseen absence due to significant religious observances or official representation of the University in events, students should discuss the conflict with the instructor well in advance of the absence in order to determine possible alternate arrangements. Class attendance expectations and consequences for absence are left to the discretion of individual instructors. Instructors may require documentation from the appropriate University personnel regarding the reason for the intended absence.

Title IX and ADAAA

The Americans with Disabilities Act Amendment Act (ADAAA) requires that the University ensure that all students have equal access to academic and University programs. Students with particular disabilities who are registered with the Disabilities Resources Office may be qualified to receive an accommodation that includes flexibility in class attendance. The federal Department of Education has issued a clarification of laws associated with Title IX and class attendance. To be in compliance with Title IX, a school must offer appropriate accommodation to a student whose absence is related to pregnancy or childbirth for as long as the student's doctor deems the absence to be medically necessary.

See "Supporting the Academic Success of Pregnant and Parenting Students Under Title IX of the Education Amendments of 1972," U.S. Department of Education, Office for Civil Rights, June 2013.

Final Examinations

A final examination, if given in a course, must be given on the date and time scheduled by the Office of the Registrar. If the final examination is a take-home examination, it may not be due before the scheduled final examination time or any later than the last day of the examination period. Similarly, other end-of-quarter assignments (papers, projects, for example) may not be due any later than the last day of the examination period. Exceptions to this policy require approval of the department chair and the relevant academic dean.

REGISTRATION POLICIES AND REGULATIONS

Enrollment and Registration for Classes

Students must be officially registered for all classes in accordance with the regulations, procedures, and dates in the Schedule of Classes. Registration is subject to full payment of tuition, room and board charges, and other fees associated with enrollment. The University reserves the right to deny registration to any student for reasonable cause. A student's eligibility to register for classes is subject to the clearance of any holds on the student's record for academic, financial, student conduct, or other reasons. Santa Clara students may not be concurrently enrolled at another college or university except for extraordinary reasons with the approval of the Drahmann Center.

Students register for classes via University eCampus during the time assigned by the Office of the Registrar. Students who do not complete registration during the initial registration period may do so during the published late registration period for the term. Initial registration for a term or class additions are not accepted after the last day of the late registration period.

During the first week of each term, students may add and drop classes in accordance with the procedures established by the Office of the Registrar. During the first, second, third, and fourth weeks of the term, a student may drop a class without receiving a mark of "W" for the class on their academic record. From the fifth week to the end of the seventh week of the term, a student may drop a class and receive a mark of "W" for the class on their academic record. Students may not drop classes after the last day of the seventh week of the term. Students who do not complete a course and do not drop the class in accordance with the required procedures will receive an appropriate grade in the class.

Students who have not earned 44 units, including transfer credit, may be subject to administrative withdrawal from upper-division courses. This restriction does not apply to upper-division foreign language courses for which a student has demonstrated sufficient proficiency or to engineering courses in the major program.

Students may not sit in a class without formally enrolling in the class. Sitting in a class or obtaining an instructor's signature on an add form does not constitute enrollment.

Students who do not attend the first day of a class are subject to administrative cancellation of their enrollment in that class in order to make space available to other students. A student who must miss the first day of a class and wishes to remain in the course should contact the instructor in advance. No student who misses the first day of a class should assume that they have been dropped from the course. Students are responsible for checking the status of their enrollment in all courses prior to the end of the late registration period.

Unit Overload

Students may enroll for no more than 19 units unless they are in the University Honors Program, their cumulative grade point average at Santa Clara is at least 3.3, or they have upper-division status and obtain approval from the Drahmann Center. One 2-unit course or two 1-unit courses are not counted as overload units. Students who meet the criteria above will not be permitted to register for more than 25 units without approval of the Dean of Academic Support Services. Students may register for courses that result in overload units only during the late registration period. See the website of the Office of the Registrar for registration schedules.

Auditing Courses

Students admitted to degree status at Santa Clara may audit one course in addition to their regular course load in a term. A maximum of three courses may be audited during a student's academic career. Permission to audit a course will be given only at the end of the late registration period and only if space is available in the class. No credit is assigned for an audited course, but the successful completion of an audit will be indicated on a student's transcript by the notation "AUD."

Administrative Cancellation of Course Enrollment

Students who enroll in a course for which they are not eligible are subject to administrative cancellation of their enrollment in that course. Prior to the end of the late registration period, an instructor may notify the University registrar to drop first-year students who registered in upper-division courses, to drop students who have not satisfied the prerequisites for the course, or to drop students lacking the instructor permission required for certain courses.

Withdrawal from the University

Students who wish to withdraw from the University must do so by the last day of classes, and must complete a withdrawal survey, appropriate forms, and an exit interview in the Drahmann Center. If the formal requirements for withdrawal are met, the student's registration will be canceled without further academic penalty. Students who leave the University during a quarter without withdrawing in accordance with the required procedures will receive an appropriate grade in all courses in which they were registered and are not eligible for a refund of tuition or other fees.

Students who withdraw from the University are responsible for any outstanding financial obligations with the University. Students who used deferred payment plans or student loans during their attendance at the University must clear their financial obligations with the Financial Aid Office and the Bursar's Office. Students who have unpaid bills or other unsettled financial obligations with the University will not receive academic transcripts or be eligible for re-enrollment until they have cleared all such obligations.

Withdrawal for Health Reasons

Students may experience an illness, injury, or psychological condition that significantly impairs their ability to function successfully or safely in their role as students. In these instances, the Policy for Withdrawal for Health Reasons allows time away from the University for treatment and recovery until functioning is restored to a level that will enable the student to return to the University. The purpose of this policy is to set forth the procedures for student withdrawals from the University for reasons of health and/or safety. The University has designated four categories relating to withdrawal. They differ according to who initiates the action, whether it is voluntary or not, and the re-enrollment procedures.

The vice provost for student life or designee, in consultation with the appropriate mental and medical health professionals and other staff as deemed necessary, is responsible for the implementation of this policy as stated in the Student Handbook.

Re-enrollment at the University

A student who withdrew from the University is eligible to re-enroll without special permission under the following conditions:

- The student left the University in good academic standing
- The student has no outstanding financial obligations with the University
- The student plans to return to the same college or school at the University
- The student is returning within five years of the date of their withdrawal

Students who do not meet the conditions above must seek permission to re-enroll from the Dean of Academic Support Services. Re-enrolling students are subject to degree and curriculum requirements in the *Undergraduate Bulletin* in effect at the time of re-entry.

Students wishing to re-enroll must notify the Office of the Registrar in writing of their intent to return using the Returning Student form and should consult with a University advisor in the Drahmann Center to review their academic plans. Students on leave who have attended another college or university are only permitted to transfer in a maximum of 10 units of elective credit and are required to forward to the Office of the Registrar an official transcript of all work completed during their absence.

GRADING POLICIES AND REGULATIONS

Grading

Grades are assigned by the instructor to reflect the quality of a student's work. The University uses the following grades:

A: Excellent
B: Good
C: Adequate
D: Barely Passing
F: Not Passing
P: Pass
NP: No Pass

The grades A, B, C, and D may be modified by (+) or (–) suffixes, except that the grade of A may not be modified by a (+) suffix. Grade point values per unit are assigned as follows:

A = 4.0
A– = 3.7
B+ = 3.3
B = 3.0
B– = 2.7
C+ = 2.3
C = 2.0
C– = 1.7
D+ = 1.3
D = 1.0
D– = 0.7
F = 0

Unit credit, but not grade point credit, is awarded when the grade of "P" is assigned. Unit credit is not awarded when the grade of "NP" is assigned.

The University also uses the following marks for which no unit credit or grade point value is granted:

I: Incomplete
N: Continuing work
NS: No Show
AUD: Audit
W: Withdrawn

Pass/No Pass (P/NP)

A grade of "P" signifies that the quality of work done is equivalent to a letter grade of "C" or higher, while a grade of "NP" denotes work at the level of "C–" or lower. A maximum of six courses taken under the pass/no pass option in which the student receives a mark of "P" can be used to fulfill the unit requirements for graduation.

Some courses are offered only on a pass/no pass basis. If a graded option is not available, a course can satisfy Core, major, and/or minor requirements. A student with junior or senior standing and a declared major may choose to take an elective course on a pass/no pass basis. Students may enroll in only one elective course on a pass/no pass basis per quarter. Students may choose the pass/no pass option for a class through the end of the fourth week of classes, but may not change the grading option after that date.

Incomplete (I)

The mark of "I" (incomplete) may be assigned by the instructor when a student does not complete some essential portion of the assigned work in a class because of extraordinary circumstances beyond the student's control. The unfinished work must be completed and given to the course instructor within three weeks of the beginning of classes in the next scheduled term (not the student's next term of enrollment), excluding summer session, unless extraordinary circumstances require an extension. A request for an extension must be submitted in writing by the instructor and approved by the University Registrar within the original three-week period. Extensions shall not be for longer than two academic quarters after the mark of "I" was assigned, excluding summer session. An incomplete that has not been completed within the specified deadline or has not received an approved extension will be converted to a grade of "F."

Continuing Work (N)

The mark of "N" (continuing work) may be assigned by an instructor when course requirements span more than one term. When the course requirements are completed, the instructor assigns a standard grade. A student may not graduate and receive a degree with a mark of "N" on their academic record.

No Show (NS)

The mark of "NS" (no show) may be assigned by an instructor when a student never attends a class and does not drop the class. A mark of "NS" cannot be changed to any other grade or mark after it is assigned by the instructor. A mark of "NS" is included in the student's academic record and appears on the student's transcript, but is not included in the calculation of the student's grade point average. No adjustment in tuition will result from the awarding of a mark of "NS" in a class.

Audit (AUD)

The mark of "AUD" is assigned when a student enrolls in a class on an audit basis. A mark of "AUD" cannot be changed to any other grade.

Withdrawn (W)

The mark of "W" is assigned by the Office of the Registrar when a student completes the formal requirements for dropping a class or withdrawing from the University. A mark of "W" cannot be changed to any other grade or mark. A mark of "W" is included in the student's academic record and appears on the student's transcript, but is not included in the calculation of the student's grade point average.

Grade Point Average

A student's grade point average is determined by multiplying each grade point value by the number of quarter units assigned to the course, adding these grade point units from all courses taken, and dividing this sum by the total number of quarter units for which letter grades were reported. Grade reports are posted at the end of each quarter and indicate both the grade point average earned by the student during the quarter and the cumulative grade point average earned by the student for all courses completed to that point.

Grades earned in courses in SCU-operated or SCU-affiliated study abroad or domestic study programs are included in the calculation of a student's grade point average. Grades earned in courses at other institutions accepted for transfer credit are not included in the calculation of a student's grade point average, but will be considered when determining honors at graduation.

Evaluation of Progress

Grades are available at the end of the term via University eCampus. Faculty members are expected to apprise students of their course progress at reasonable intervals. Some measurements of progress should take place in time to enable students to make reasonable decisions with respect to the fourth-week and seventh-week withdrawal deadlines.

Change of Grade

Only the faculty member responsible for a course may assign grades. All grades become final when they have been assigned and reported to the Office of the Registrar. A faculty member may report a correction of a final grade to the Office of the Registrar only if a clerical or procedural error was made in assigning, transmitting, or recording the original grade. A grade may not be changed as a result of re-evaluation, re-examination, or the submission of additional work after the term ends. Any grade change must have the approval of the department chair and the associate dean of the student's school or college. No grade may be changed after one year.

Student Appeals of Grades

Grades are not negotiable. There should be no questioning of a faculty member's academic judgment on a grade. In registering for a class, students implicitly agree to allow the faculty member to make a qualitative judgment of their command of the subject matter, which will be expressed as a letter grade. Any questioning or appeal of a grade should therefore be limited to procedure, e.g., to computational errors or failures to follow grading policies set forth in the syllabi.

Any system of grade-appeal should protect the rights of faculty members as well as the rights of students. The results of any system of grade-appeal should not be binding upon the faculty member. Any decision to initiate a change of grade should remain the faculty member's. Any procedural complaint regarding a change of grade must be initiated within four weeks of the beginning of the next scheduled term, not including summer sessions.

A student with a complaint must first discuss the matter with the faculty member. If the matter is not resolved at this level, the student may then take the matter to the chairperson of the department involved. The chairperson will discuss the case with the faculty member and may recommend that the faculty member review the grade. Upon the request of the student, the dean will proceed in similar fashion. Should the student request it, the dean will pass the matter on to the provost.

This process of review gives the chairperson, dean, and provost the right to discuss the matter with the faculty member, and if they think it appropriate, request that the faculty member review the grade. Any recommendations made will not be binding upon the faculty member against whom the complaint is lodged. The decision to change a grade remains with the faculty member.

ACADEMIC STANDING AND STUDENT CLASSIFICATION

Student Classification

The University only admits students to its undergraduate degree programs on a full-time basis. Students who have not been admitted to degree status at the University may register for classes in accordance with the policies and regulations outlined in the section of this chapter covering non-degree students.

The classification of students is determined by the number of quarter units completed with passing grades. Lower-division students are considered first-year if they have completed fewer than 44 units and sophomores when they have completed at least 44 units but fewer than 88 units. Upper-division students are considered juniors when they have completed at least 88 units but fewer than 131 units and seniors when they have completed at least 131 units.

If a student is enrolled for 12 or more units in a given term, they have full-time status for academic purposes. Students enrolled for fewer than 12 units have part-time status for that term and may not qualify for all University activities and benefits, such as eligibility for financial aid, on-campus housing, and intercollegiate athletic competition. Continuing enrollment at the University in part-time status requires approval by the Dean of Academic Support Services.

Academic Standing

To be in good academic standing at the University, a student must normally be enrolled for 12 or more units, must maintain a cumulative grade point average of at least 2.0 based on all courses taken at Santa Clara, and must have completed at least a minimum number of units as specified below. Failure to meet these requirements may result in academic probation or disqualification from future registration at the University.

Students in their last term of enrollment before completing a degree may be classified as a full-time student when enrolled for less than 12 units.

Academic Probation

Students at Santa Clara are subject to academic probation if their cumulative grade point average is lower than 2.0 based on all courses taken at Santa Clara.

Students are also subject to academic probation if they fail to make satisfactory progress toward their degree as defined below:

- Completing at least 36 quarter units in the previous three quarters of residency

or

- Completing at least 36 quarter units by the end of the third quarter of residency
- Completing at least 76 quarter units by the end of the sixth quarter of residency
- Completing at least 115 quarter units by the end of the ninth quarter of residency
- Completing at least 160 quarter units by the end of the 12th quarter of residency

Academic Disqualification

Students are subject to disqualification from further registration at the University for any of the following:

- Remaining on academic probation for more than two quarters without improvement
- Failing to maintain a cumulative grade point average of at least 2.0

or

- Completing fewer than 30 quarter units by the end of the third quarter of residency
- Completing fewer than 64 quarter units by the end of the sixth quarter of residency
- Completing fewer than 100 quarter units by the end of the ninth quarter of residency
- Completing fewer than 150 quarter units by the end of the 12th quarter of residency

Reinstatement to the University

Reinstatement to the University after disqualification is rarely permitted and requires favorable action by the Dean of Academic Support Services in consultation with the dean of the student's college or school. Requests for reinstatement are made to the Dean of Academic Support Services and must include a description of any activities during the period of disqualification that would indicate that an improved academic performance can be expected in the future. A student generally may not apply for reinstatement within a year of the date of disqualification. The request for reinstatement will be considered only if the student's academic deficiencies can be corrected within a reasonable time.

ACADEMIC CREDIT EVALUATION

Santa Clara awards credit based on the Advanced Placement Program, the International Baccalaureate Program, University of Cambridge International Examinations, courses completed at other colleges and universities, and courses completed in University-approved study abroad and domestic study programs using the criteria outlined herein. Students may not take a course for credit for which they have received advanced placement, International Baccalaureate, University of Cambridge, or transfer credit. Credit is not awarded for the College-Level Examination Program (CLEP).

Advanced Placement Credit

Santa Clara participates in the Advanced Placement Program to recognize college-level academic achievement prior to matriculation and to encourage students to pursue advanced studies in their areas of interest. Credit or placement is determined by the appropriate department based on review of the student's Advanced Placement scores, sometimes in the context of supplemental departmental examinations. Students will be notified of advanced placement credit upon matriculation at the University.

The following chart indicates the subject examination, required scores, and Santa Clara credit granted through the Advanced Placement tests. Courses waived will always satisfy relevant requirements in the major of the department that offers the course. However, only some courses waived will satisfy requirements in the Core Curriculum.

Courses waived by AP test scores, when relevant, may satisfy Second Language, Mathematics, Natural Science, and Social Science requirements in the Core Curriculum. No other undergraduate Core requirement can be satisfied with AP test scores.

Final decisions on academic credit for some AP scores are made individually by the appropriate academic department in consultation with the Office of the Registrar.

Exam	Subject	Required Score	SCU Unit Credit	SCU Equivalent	Core
AP	Art History	4, 5	4	ARTH 21, 22, or 23	No Core Credit
AP	Biology	4, 5	4	Elective Credit*	No Core Credit
AP	Calculus AB	4, 5	8	MATH 11 or 30 and elective credit	Mathematics
AP	Calculus BC	3	4	MATH 11 or 30	Mathematics
AP	Calculus BC	4, 5	12	MATH 11 & 12 or MATH 30 & 31 and elective credit	Mathematics
AP	Chemistry	3	5	CHEM 11	Natural Science
AP	Chemistry	4	10	CHEM 11 & 12	Natural Science
AP	Chemistry	5	10–15	CHEM 11 & 12 (credit for CHEM 13 granted after completing CHEM 99)	Natural Science
AP	Chinese Language & Culture	4, 5	4	CHIN 21	Second Language
AP	Comparative Government & Politics	4, 5	4	POLI 2	Social Science
AP	Computer Science A	3	5	COEN 10, 10L	No Core Credit
AP	Computer Science A	4, 5	10 for COEN; 4 for CSCI	COEN 10 & 10L & 11 & 11L; or CSCI 10	No Core Credit
AP	English Language	4, 5	4	Elective Credit	No Core Credit
AP	English Literature	4, 5	4	Elective Credit	No Core Credit
AP	Environmental Science	4, 5	4	Elective Credit	No Core Credit
AP	European History	4, 5	4	HIST 23	No Core Credit
AP	French Language	4, 5	4	FREN 21	Second Language
AP	German Language	4, 5	4	GERM 21	Second Language

Exam	Subject	Required Score	SCU Unit Credit	SCU Equivalent	Core
AP	Human Geography	4, 5	4	ANTH 50 or ENVS 50 or POLI 50	No Core Credit
AP	Italian Language and Culture	4,5	4	ITAL 21	Second Language
AP	Japanese Language & Culture	4, 5	4	JAPN 21	Second Language
AP	Latin Vergil	4, 5	4	Elective Credit*	No Core Credit
AP	Macroeconomics	4, 5	4	ECON 2	Social Science
AP	Microeconomics	4, 5	4	ECON 1	Social Science
AP	Music: Theory	4, 5	4–8	MUSC 1 or MUSC 1 & 1A*	No Core Credit
AP	Physics B	4, 5	4	PHYS 11	No Core Credit
AP	Physics C: Mechanics	4, 5	4	PHYS 31	No Core Credit
AP	Physics C: Electricity & Magnetism	4, 5	5	PHYS 33	Natural Science
AP	Psychology	4, 5	4	PSYC 2	Social Science
AP	Spanish Language	4, 5	4	SPAN 21	Second Language
AP	Spanish Literature	4, 5	4	SPAN 22	Second Language
AP	Statistics	4, 5	4	MATH 8 or OMIS 40	Mathematics
AP	Studio Art: 2-D Design	4, 5	4	Elective Credit	No Core Credit
AP	Studio Art: 3-D Design	4, 5	4	Elective Credit	No Core Credit
AP	Studio Art: Drawing	4, 5	4	Elective Credit	No Core Credit
AP	U.S. Government & Politics	4, 5	4	POLI 1	No Core Credit
AP	U.S. History	4, 5	4	HIST 96A or 96B	No Core Credit
AP	World History	4, 5	4	Elective Credit*	No Core Credit

*See department chair for evaluation of credit toward major or minor.

International Baccalaureate

Santa Clara University recognizes the International Baccalaureate (IB) Program for admission and advanced placement.

The following chart indicates the subject examination, required scores, and Santa Clara credit granted through the International Baccalaureate higher level tests. Courses waived will always satisfy relevant requirements in the major of the department that offers the course. However, only some courses waived will satisfy requirements in the Core Curriculum.

Courses waived by IB scores, when relevant, may satisfy Arts, Second Language, Mathematics, Natural Science, and Social Science requirements in the Core Curriculum. No other undergraduate Core requirement can be satisfied with IB test scores.

No credit is awarded for IB subsidiary level examinations. Final decisions on academic credit for some IB scores are made individually by the appropriate academic department in consultation with the Office of the Registrar.

Exam	Subject	Required Score	SCU Unit Credit	SCU Equivalent	Core
IB	Biology	6, 7	4	BIOL 22	No Core Credit
IB	Business & Management	6, 7	4	BUSN 70	No Core Credit
IB	Chemistry	6, 7	5	CHEM 11	Natural Science
IB	Computer Science	6, 7	10	COEN 10 & COEN 10L & COEN 11 & 11L	No Core Credit
IB	Design Tech	6, 7	4	Elective credit	No Core Credit
IB	Economics	6, 7	8	ECON 1 & 2	Social Science
IB	English A1	6, 7	4	Elective credit	No Core Credit
IB	Environmental Systems	6, 7	4	Elective credit*	No Core Credit
IB	Film	6, 7	4	Elective credit*	No Core Credit
IB	Further Mathematics	6, 7	4	Elective credit*	No Core Credit
IB	Geography	6, 7	4	ANTH 50 or ENVS 50 or POLI 50	No Core Credit
IB	History	6, 7	4	Elective credit	No Core Credit
IB	History of Americas	6, 7	4	Elective credit	No Core Credit
IB	History of Europe	6, 7	4	Elective credit	No Core Credit
IB	History of the Islamic World	6, 7	4	Elective credit	No Core Credit
IB	Language B	6, 7	4	3rd quarter introductory language	Second Language
IB	Mathematics	6, 7	4	Elective credit*	Mathematics
IB	Music	6, 7	4	Elective credit*	No Core Credit
IB	Philosophy	6, 7	4	Elective credit*	No Core Credit
IB	Physics	6, 7	14	PHYS 11 & 12 & 13	Natural Science
IB	Psychology	6, 7	4	Elective credit*	No Core Credit
IB	Social & Cultural Anthropology	6, 7	4	Elective credit*	No Core Credit
IB	Theatre	6, 7	4	Elective credit*	No Core Credit
IB	Visual Arts	6, 7	4	TRCR 27*	Arts

*See department chair for evaluation of credit toward major or minor.

University of Cambridge International Examinations

Santa Clara University accepts selected University of Cambridge International Advanced (A) Level examinations with letter grades of A (a) or B (b). Advanced Subsidiary (AS) and Ordinary (O) Level examinations are not awarded credit. Final decisions on academic credit for A Level subject examinations are made individually by the appropriate academic department in consultation with the University Registrar. Courses waived will satisfy relevant requirements in the major of the department that offers the course. However, only some courses waived will satisfy requirements in the Core Curriculum.

Transfer Credit and the Core Curriculum

Two sets of rules for awarding transfer credit for Core areas are in place, one for students admitted as first-year students and another for transfer students.

All students must satisfy the following Core requirements at Santa Clara University: Civic Engagement; Science, Technology & Society; Advanced Writing; Experiential Learning for Social Justice; and Pathways.

Students admitted as first-year students must also satisfy Critical Thinking & Writing and Cultures & Ideas 1 and 2 with courses completed at Santa Clara University.

In contrast, students admitted as transfers are encouraged to complete Critical Thinking & Writing 1 and 2 and Cultures & Ideas 1 and 2 before their first quarter at Santa Clara. For transfer students only, transfer credit for Critical Thinking & Writing may include exemptions granted at other schools and credit granted through Advanced Placement and International Baccalaureate test scores. Information about possible substitutions for Critical Thinking & Writing and Cultures & Ideas courses is available in the Office of the Registrar.

Transfer students who enter the University with fewer than 44 units must take all three Religion, Theology & Culture courses in the required sequence. Students matriculating with 44 or more units of transferable college credit, which does not include any Advanced Placement or International Baccalaureate test credit, must complete two courses, in any order, from any two of the following three categories: Religion, Theology & Culture 1, 2, or 3. However, all students except Religious Studies majors and minors must complete 88 units before enrolling in Religion, Theology & Culture 3 courses.

Transfer students must declare their Pathways by the end of their third quarter at SCU. Transfer students in the College of Arts and Sciences and Leavey School of Business who matriculate with fewer than 44 units must take four courses to fulfill the Pathways requirement. Transfer students in the College of Arts and Sciences and Leavey School of Business who matriculate with more than 44 units must take three courses to fulfill the Pathways requirement. All transfer students in the School of Engineering must take three courses to fulfill the Pathways requirement.

Students who transfer to Santa Clara University should consult Chapters 7 and 8 as well as the chapters relevant to their school or college.

Units Taken at Other Institutions

Credit is awarded for coursework completed at other colleges and universities subject to certain limitations. Courses from accredited institutions are generally transferable if they are similar in nature to courses listed in the Santa Clara University *Undergraduate Bulletin*. Courses from California community colleges are also generally transferable under the same conditions and if designated as transferable to the University of California. Courses of a trade or technical nature do not transfer. Courses from colleges not accredited, trade schools, extension programs, or correspondence programs do not transfer.

Transfer students can receive credit for coursework completed at other colleges and universities prior to matriculation at Santa Clara for no more than half of the total number of quarter units required for the specific Santa Clara degree. After enrolling at Santa Clara, students can receive credit for coursework completed at other colleges and universities for no more than 10 quarter units of free electives, subject to the limitation that no more than half of the total number of quarter units required for a Santa Clara degree can be earned at another institution. Transfer credit earned after initial enrollment at Santa Clara may not be used to fulfill Undergraduate Core Curriculum, college or school, department, or program requirements.

Transfer credit for all coursework completed at other colleges and universities requires approval from the Office of the Registrar and the chair of the department offering the equivalent Santa Clara course. The student must have earned a grade of "C" or better in a course for transfer credit to be granted. Courses taken on a pass/no pass or credit/no credit basis are not accepted as transfer credit. Grades for units earned at other institutions are not included in a student's Santa Clara academic history or in the calculation of the Santa Clara grade point average.

Study Abroad and Domestic Study Programs

Qualified undergraduate students may apply to study abroad for a summer, quarter, or semester in a country and academic environment that will enrich their overall college experience, contribute positively to the life of the University, and engender responsible participation in a global, multicultural society.

Units and grades earned through study abroad programs and domestic off-campus study programs that have been approved through regular University processes are included on the Santa Clara University transcript and may be used to fulfill major, minor and Core requirements with prior approval by the department chair or Core Director. Grades earned in approved study abroad and domestic off-campus study programs are included in the calculation of the Santa Clara grade point average. The third-level Core Curriculum requirement in Religion, Theology & Culture cannot be fulfilled with a study abroad course.

Units earned for coursework in study abroad and domestic off-campus study programs not approved by the University through the regular application process are subject to the policies governing transfer credit and may not fulfill major, minor, or Core requirements. See the sections on transfer credit earlier in this chapter and in Chapter 7.

NON-DEGREE STUDENTS

The Santa Clara University undergraduate program is designed primarily for full-time, degree-seeking students. To maintain the University's commitment to its primary undergraduate constituency of degree students, non-degree students are permitted to register in accordance with the following policies subject to space availability in classes.

Santa Clara Alumni

Santa Clara alumni who have been awarded a degree from Santa Clara University may enroll in undergraduate classes on a for-credit basis or may audit undergraduate classes. Alumni may enroll for no more than 10 units per term on a for-credit basis, or they may audit one course per term. They are certified for enrollment by the Office of the Registrar and register for classes during the late registration period of the term.

University Employees

University employees who are students at another accredited college or university may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution. They may not enroll concurrently at Santa Clara and another college or university. University employees who are not currently admitted to degree status are certified for enrollment by the Office of the Registrar and may audit one course per term.

Students from Other Colleges and Universities

Students from another accredited college or university may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution. They may not be enrolled concurrently at Santa Clara and another college or university. Students from other colleges and universities may enroll for no more than three quarters, not including summer session, and are not eligible to audit classes. Students from other colleges and universities are certified for enrollment by the Drahmann Center and the Office of the Registrar and register for classes during the late registration period of the term.

Students from Other Colleges and Universities Participating in SCU Exchange Programs

Students from other colleges and universities participating in Santa Clara's non-degree Exchange and Visiting programs apply through the Global Engagement Office. Applicants are expected to meet all prerequisites and requirements of the specific partnership. Exchange and Visiting students may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution and meet all prerequisites required of the exchange agreement. They are not eligible to audit classes.

Students from Other Institutions Enrolling in SCU Study Abroad Programs

Students from other colleges and universities may apply to participate in SCU Study Abroad programs through the Global Engagement Office. Non-SCU applicants for SCU Study Abroad programs must be in good standing at their home institution and have a minimum GPA of 2.75. In addition, applicants are expected to meet all language and course prerequisites and requirements of the specific program. Non-SCU students are not eligible to audit classes.

Young Scholars

High school students who meet the applicable eligibility requirements for the Young Scholars program may enroll in undergraduate classes. Young Scholars may enroll for no more than 10 units per term and are not eligible to audit classes. Young Scholars are certified for enrollment by the appropriate Dean's Office and the Office of the Registrar after receiving permission of the faculty member to enroll in a specific class.

ACADEMIC INTEGRITY

The University is committed to academic excellence and integrity. Students are expected to do their own work and to cite any sources they use. A student who is guilty of a dishonest act in an examination, paper, or other work required for a course, or who assists others in such an act, may, at the discretion of the instructor, receive a grade of "F" for the course. In addition, a student found guilty of a dishonest act may be subject to sanctions, up to and including dismissal from the University, as a result of the student judicial process as described in the Student Handbook. A student who violates copyright laws, including those covering the copying of software programs, or who knowingly alters official academic records from this or any other institution is subject to similar disciplinary action.

Academic Integrity Protocol

Allegations within the Context of a Course

These procedures are intended to protect the integrity of the instructional program and of student academic achievement. Any member of the Santa Clara University community with a suspicion or evidence of academic dishonesty of some kind as described in the Student Conduct Code (e.g., plagiarism, falsification of data, misrepresentation of research, or the use of prohibited materials during an examination, and other acts generally understood to be dishonest by faculty or students in an academic context) may initiate an allegation of student academic dishonesty. The following describes procedures for resolution by due process.

If the allegation arises within the context of a course or academic assignment, its resolution begins with the instructor responsible for that course or assignment, who informs the student of the suspicion. If the instructor judges on the basis of available evidence that an academic violation has occurred, the instructor applies an academic sanction and notifies the student of the reason for the academic sanction. The instructor decides on the severity of the academic sanction (e.g., refusal to accept an assignment, "F" on the particular assignment, or "F" for the entire course). The instructor will report in writing to the department chair and the Office of Student Life what violation of academic integrity has occurred and what academic sanction has been applied. The Office of Student Life will pursue the matter as a violation of the Student Conduct Code through the University judicial process. This process is not intended to limit academic freedom.

Appeal Process for Academic Sanctions

If, after discussion with the instructor concerning the academic sanction applied, the student wants to challenge the instructor's decision, the student will contact the chair of the department in which the course is offered. If the instructor is the department chair, then the appeal is made to the dean of the school or college in which the course is offered or designate, and the dean or designate refers the case to the chair of a closely related department.

The department chair hearing the appeal has the option to convene an ad hoc panel if the complexity of the case warrants doing so. The student suspected of committing academic dishonesty has the right to bring a support person whose only role is to accompany the student to the hearing. The panel will include two full-time faculty members from the department in which the course was offered, one full-time faculty member from a closely related department, and two students who are trained student judicial board members. Staff in the Office of Student Life will arrange for the participation of the student panel members. The charge of the panel is to study all previously considered and newly developed evidence, review statements of all parties concerned, interview all parties concerned, and make a recommendation to the department chair.

The parties involved have the right to file an objection to the appointment of a particular faculty member or student to the ad hoc panel. This objection must be based upon a belief that the named faculty member or student is unable to conduct an impartial evaluation and therefore will not review the case in an impartial manner. The objection is filed with the chair hearing the appeal who will make a ruling on this objection. If necessary, the chair will then appoint a different faculty member or student.

After reviewing all relevant materials and information, including the recommendation of the ad hoc panel when one is convened, the department chair will consider all evidence available, confer with all parties concerned, inform all parties of the recommendation regarding the alleged violation, and report the recommendation to the student and the Office of Student Life. However, final responsibility for assigning grades remains with the instructor of the course.

Decisions may only be appealed to one level above the instructor. All proceedings are intended to be confidential.

If the student wishes to withdraw from the course, the instructor's approval is required for the withdrawal process. The instructor may refuse to approve of the withdrawal and may assign an appropriate grade.

University Judicial Process

When the Office of Student Life receives the report, the assistant dean will meet with the student to discuss the relevance of the violation to the Student Conduct Code. Whether further judicial sanctions are applied or not, the report of academic dishonesty will remain on file in the Office of Student Life for the remainder of the student's enrollment at Santa Clara University. The student involved has the right to include a statement as part of these files.

If it is ruled that the student committed an academic integrity violation, the Office of Student Life will administer a judicial sanction that would range from a letter of warning to expulsion from the University. The severity of the judicial sanction depends on the severity of the circumstances, including the student's judicial history and previous academic integrity violations.

Allegations Outside a Course

If the allegation involves a situation outside the context of a course, resolution begins with the Office of Student Life. The assistant dean will confer with all parties concerned. After hearing all evidence and conducting further investigation as needed, the assistant dean will either hear the case or refer it to a judicial board in accordance with the University Judicial Process. The outcome of the hearing will be communicated to those involved.

PATENT POLICY

For information on the University's Patent Policy, see the Office of Research Initiatives website at www.scu.edu/provost/research.

ADMINISTRATIVE POLICIES AND REGULATIONS

CLERY ACT

In accordance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, Santa Clara University annually collects information about campus crimes and other reportable incidents as defined by the law. Information presented in compliance with this act is made available to assist current and potential students and employees in making informed decisions regarding their attendance or employment at the University. These reports and other information about the law are available on the Campus Safety website. It is the policy of Santa Clara University that the campus community will be informed on a timely basis of all reports of crime and other information affecting the security of our campus and the personal safety of our students, faculty, staff, and guests.

COMMUNICATION BY THE UNIVERSITY TO UNDERGRADUATE STUDENTS

The University will communicate with undergraduate students through a variety of formats. Information that is sent to undergraduate students from the University via their campus mailbox, local address, or their Santa Clara email address is considered official communication and should be treated as such. Students are asked to check their campus mailbox and their Santa Clara email account on a daily basis, and are responsible for reading and responding to the information they receive from the University. The University urges undergraduate students to use their Santa Clara email address as their primary email; students who will not be checking that address regularly should forward their email to their preferred email account.

CONSENSUAL RELATIONS BETWEEN EMPLOYEES AND STUDENTS

In addition to prohibiting sexual harassment under the Policy on Unlawful Harassment and Unlawful Discrimination, the University prohibits any consensual dating, romantic, or sexual relationship between an employee and a student over whom that employee has any instructional, supervisory, advising, or evaluative responsibility. Such a relationship is fraught with problems, including the potential for exploitation, favoritism, and conflict of interest. The appearance of impropriety or unfairness may also adversely affect the learning and work environment for other students and employees. This policy applies to faculty, staff, and student employees. Employees who violate this policy are subject to sanctions for misconduct under the policies of the Faculty Handbook, Staff Policy Manual, or Student Employment Handbook, as appropriate to their employment status. Employees or students with questions about this policy should contact the EEO and Title IX Coordinator or the Department of Human Resources.

DRUG-FREE WORKPLACE AND SCHOOL PROGRAM

It is the goal of Santa Clara University to maintain a drug-free workplace and campus. The unlawful manufacture, distribution, dispensation, possession, and/or use of controlled substances or the unlawful possession, use, or distribution of alcohol is prohibited on the Santa Clara University campus, in the workplace, or as part of any of the University's activities. This includes the unlawful use of controlled substances or alcohol in the workplace even if it does not result in impaired job performance or in unacceptable conduct.

The unlawful presence of any controlled substance or alcohol in the workplace and campus itself is prohibited. The workplace and campus are presumed to include all Santa Clara premises where the activities of the University are conducted.

Violations will result in disciplinary action up to and including termination of employment for faculty and staff or expulsion of students. A disciplinary action may also include the completion of an appropriate rehabilitation program. Violations may also be referred to the appropriate authorities for prosecution.

The program information is distributed on an annual basis to all faculty, staff, and students. New staff employees are given a copy at New Employee Orientation. New faculty employees are given a copy at New Faculty Orientation. The program is reviewed at least biennially by the Office of Student Life and the Department of Human Resources.

STUDENT RECORDS AND RELEASE OF INFORMATION

The Family Educational Rights and Privacy Act of 1974 (FERPA) protects the confidentiality of the University records of Santa Clara University students. A student is any person who attends or has attended a class, which includes courses taken through videoconference, satellite, Internet, or other electronic and telecommunication technologies, and for whom the institution maintains education records. The University is authorized under provisions of the Act to release directory information to any person on request, unless a student explicitly requests in writing that the University not do so and keep directory information confidential.

A student's directory information is designated as follows:

- Student's name
- Address: Campus post office box, local, and permanent addresses (residence hall and room numbers are not disclosed)
- Telephone number
- Email address
- Photograph
- Date and place of birth
- Major field of study
- Classification level/academic standing
- Dates of attendance (defined as academic year or quarter)
- Participation in officially recognized activities and sports
- Weight and height of members of athletic teams
- Degrees (including expected or actual degree date), honors and awards received, and dates
- Most recent educational agency or institution attended

During the registration period and throughout the academic year, students may request in writing through the Office of the Registrar that directory information be kept confidential. Once filed, the request remains in effect until the beginning of the next academic year or a shorter period if designated by the student. Graduating students must notify the Office of the Registrar in writing to remove the nondisclosure notation from their record.

The University is authorized under FERPA to release educational and directory information to appropriate parties without consent if the University finds an articulable and significant threat to the health or safety of a student or other individuals in light of the information available at the time.

Former or current borrowers of funds from any Title IV student loan program should note carefully that requests for nondisclosure of information will not prevent the University from releasing information pertinent to employment, enrollment status, current address, and loan account status to a school lender, subsequent holder, guarantee agency, the United States Department of Education, or an authorized agent.

Students have the right to inspect and review their educational records at the following offices:

- Official academic records, including application forms, admission transcripts, letters of acceptance, and a student's permanent academic record are on file and maintained in the Office of the Registrar
- Working academic files are maintained by the Drahmann Center
- Records related to a student's nonacademic activities are maintained in the Office of Student Life
- Records relating to a student's financial status with the University are maintained in the various student financial services offices

Certain records are excluded by law from inspection, specifically those created or maintained by a physician, psychiatrist, or psychologist in connection with the treatment or counseling of a student. Parents' financial information, including statements submitted with scholarship applications, is also excluded by law from inspection. Third parties may not have access to educational records or other information pertaining to students without the written consent of the student about whom the information is sought.

Students have the right to request the amendment of their educational records to ensure that they are not inaccurate, misleading, or otherwise in violation of the student's privacy or other rights. Students may direct complaints regarding academic records to the dean of the college or school in which they are enrolled or to the University registrar. In addition, students have the right to file a complaint with the United States Department of Education concerning alleged failures by the University to comply with the requirements of the Act. Written complaints should be directed to the Family Policy Compliance Office, Department of Education, 400 Maryland Avenue SW, Washington, D.C. 20202-5920.

For further information regarding Santa Clara University's FERPA policy, please refer to www.scu.edu/students/ferpa/policy.cfm.

NONDISCRIMINATION POLICY AND TITLE IX

Santa Clara University prohibits discrimination and harassment on the basis of race, color, religious creed, sex, gender, gender expression, gender identity, sexual orientation, religion, marital status, registered domestic partner status, veteran or military status, age, national origin or ancestry, physical or mental disability, medical condition including genetic characteristics, genetic information, or any other consideration made unlawful by federal, state, or local laws in the administration of its educational policies, admissions policies, scholarships and loan programs, athletics, or employment-related policies, programs, and activities; or other University-administered policies, programs, and activities. Harassment constitutes a form of discrimination that is prohibited by law and by university policy.

In accordance with Title IX of the Education Amendments of 1972, Santa Clara University upholds a zero-tolerance policy for gender-based discrimination and sexual misconduct. This includes conduct by employees, students, or third parties.

Additionally, it is the University's policy that there shall be no discrimination or retaliation against employees or students who raise issues of discrimination or potential discrimination or who participate in the investigation of such issues. The University will provide reasonable accommodations for the known physical or mental limitations of an otherwise qualified individual with a disability under the law.

If you (or someone you know) has experienced or experiences discrimination, harassment, or sexual harassment including sexual assault, domestic and dating violence, or stalking, we encourage you to tell someone what happened promptly. The University has staff members trained to support individuals in navigating campus policies and grievance procedures, accessing health and counseling services, providing academic and housing accommodations, and more. Inquiries regarding equal opportunity policies, the filing of grievances, or requests for a copy of the University's grievance procedures covering discrimination and harassment complaints should be directed to: Belinda Guthrie, EEO and Title IX Coordinator, Office of EEO and Title IX, Santa Clara University, 475 El Camino Real, 2nd Floor Room 223, Santa Clara, CA 95053; 408-554-4113.

STUDENT CONDUCT CODE

All members of the University community have a strong responsibility to protect and maintain an academic climate in which the fundamental freedom to learn can be enjoyed by all and where the rights and well-being of all members of the community are protected. To this end, certain basic regulations and policies have been developed to govern the conduct of all students as members of the University community. Copies of the Student Handbook, which includes the Student Conduct Code, and information about the policies and procedures regarding the student judicial system are available from the Office of Student Life and at http://www.scu.edu/studentlife/resources/publications/student_handbook.cfm).

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Tuition, Fees, and Financial Aid

FINANCIAL RESPONSIBILITY

Students assume responsibility for all costs incurred as a result of enrollment at Santa Clara University. It is the student's responsibility to be aware of their account balance and financial aid information, and maintain current valid contact information at all times to ensure receipt of all University correspondence in a timely manner.

FINANCIAL TERMS AND CONDITIONS

Students are required to accept the financial terms and conditions outlined by the University in order to continue their enrollment at SCU. Students will be prompted to accept the terms and conditions, on an annual basis, upon their login to eCampus. Students will not have access to their Student Center until they have read and agreed to the information contained on the page(s) prompted. By accepting SCU's financial terms and conditions, students are agreeing to pay for services rendered by the University and to abide by all policies and procedures as published.

TUITION

The Board of Trustees, upon the recommendation of the president and the provost, sets the annual academic year tuition rate and the summer sessions tuition rate for the undergraduate program. The full-time quarterly tuition rate for fall, winter, and spring terms is set at one-third of the annual tuition rate. The part-time, per-unit tuition rate for fall, winter, and spring terms is set at one-twelfth of the quarterly tuition rate. The summer sessions tuition rate is set at a percentage of the per-unit tuition rate for the preceding academic year. The Young Scholars tuition rate is set at one-fourth of the applicable per-unit tuition rate. See www.scu.edu/about/tuition.cfm for details.

SANTA CLARA UNIVERSITY CAMPUS PROGRAMS

Students enrolled during the academic year or summer sessions on the Santa Clara University campus are charged tuition based on the standard undergraduate tuition rates approved by the Board of Trustees.

Academic Year

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled during the academic year are charged tuition in accordance with the following:

- Students enrolled for 12 or more units in a term are charged the quarterly full-time tuition rate.
- Students enrolled for less than 12 units in a term are charged the per-unit tuition rate for one to 11 units.
- Students admitted to degree status are not charged a separate course audit fee for auditing a course.

Santa Clara University Alumni

Santa Clara University alumni enrolled during the academic year are charged the applicable tuition associated with their enrollment status (i.e., enrollment for credit or auditing).

University Employees

University employees enrolled during the academic year who are admitted to degree status at the University or who are students in good standing at another accredited college or university are charged tuition at the applicable tuition rate associated with their enrollment status (i.e., enrollment for credit or auditing). Employees are eligible for tuition remission in accordance with Policy 609 (Education Benefits) in the Staff Policy Manual.

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled at Santa Clara University during the academic year are charged tuition at the applicable tuition rate associated with their enrollment status (i.e., full-time or part-time status). Students from other colleges and universities are not eligible to audit courses at the University.

Young Scholars

High school students enrolled under the Young Scholars program during the academic year are charged tuition at the Young Scholars tuition rate.

Tuition Status and Adjustments

The tuition status of a student is determined as of the end of the late registration period. Students enrolled for 12 or more units at the end of the late registration period are charged the quarterly tuition rate. Students enrolled for fewer than 12 units at the end of the late registration period are charged the per-unit tuition rate.

No adjustment is made to the tuition charges for changes to enrollment after the end of the late registration period unless the student withdraws from the University. If a student is enrolled for 12 or more units at the end of the late registration period and subsequently drops below 12 units, no adjustment is made in the tuition charges for that term unless the student withdraws from the University within the refund deadlines. If a student is enrolled

for fewer than 12 units at the end of the late registration period and subsequently drops a course, no adjustment is made in the tuition charges for that term unless the student withdraws from the University within the refund deadlines.

Tuition Refunds

Students who withdraw from the University are eligible for a refund of tuition charges in accordance with the policies outlined below. No refunds are made for registration fees or course audit fees.

Students who wish to withdraw from the University are responsible for meeting with a University advisor in the Drahmann Center, for submitting the applicable withdrawal form with the Office of the Registrar, and for completing all other withdrawal requirements. The effective date used for the determination of any refund of tuition is the date on which notification of withdrawal is received by the Office of the Registrar, not the last date of attendance by the student. Neither dropping all courses via eCampus nor informing an individual faculty member, an academic department, or the Dean's Office constitutes an official withdrawal from the University. The official date of withdrawal from the University cannot be backdated prior to the date on which the student submits the applicable withdrawal form or notification to the Office of the Registrar.

Students who withdraw from the University during fall, winter, or spring term will receive a tuition refund in accordance with the following:

- Students who withdraw from the University by the end of the first week of classes will receive a full refund of tuition for the term, less the applicable registration cancellation fee.
- Students who withdraw from the University by the end of the second week of classes will receive a 50 percent refund of tuition for the term.
- Students who withdraw from the University by the end of the third week of classes will receive a 25 percent refund of tuition for the term.
- Students who withdraw from the University after the third week of classes will receive no tuition refund for the term.

Students who withdraw from the University due to an illness, injury, or psychological/emotional condition are eligible for a tuition refund in accordance with the schedule above. Tuition insurance may be purchased prior to the beginning of the academic quarter to cover tuition charges for medically related withdrawals that occur after the first week of the term.

Santa Clara degree students who withdraw from the University or who are administratively withdrawn from the University after the third week of the term due to a qualifying financial hardship may be eligible for an allocation from the student hardship fund for 25 percent of the tuition charges for that term. Qualifying financial hardships include (1) death, disabling injury, medical emergency, or loss of job of the parent or guardian of a dependent student; (2) loss of job by an independent student; (3) medical or other emergency involving a dependent of an independent student; and (4) deployment for active military duty of a student. The vice provost for student life or designee, in consultation with the Financial Aid Office, will determine qualifying financial hardships and any allocation from the student hardship fund. Students must submit a request for an allocation from the student hardship fund by the end of the applicable term.

No tuition refunds are made because of curtailment of services resulting from strikes, acts of God, civil insurrection, riots or threats thereof, or other causes beyond the control of the University.

Summer Sessions

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled during summer sessions are charged the summer sessions tuition rate.

Santa Clara University Alumni

Santa Clara University alumni enrolled during summer sessions are charged the applicable tuition rate associated with their enrollment status (i.e., enrollment for credit or auditing).

University Employees

University employees enrolled during summer sessions at Santa Clara University who are admitted to degree status at the University or who are students in good standing at another accredited college or university are charged tuition at the applicable tuition rate associated with their enrollment status (i.e., enrollment for credit or auditing). Employees are eligible for tuition remission in accordance with Policy 609 (Education Benefits) in the Staff Policy Manual.

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled at Santa Clara University during summer sessions are charged tuition at the summer sessions tuition rate and the summer sessions application fee. Students from other colleges and universities are not eligible to audit courses at the University. International students enrolling in summer sessions may be subject to additional requirements and limitations. Students should refer to the Global Engagement Office website for more information: geo@scu.edu.

Young Scholars

High school students enrolled under the Young Scholars program during summer sessions are charged tuition at the Young Scholars tuition rate and are not charged the summer sessions application fee.

Tuition Refunds

Students who drop a course(s) during summer sessions are eligible for a refund of tuition charges in accordance with the policies outlined below. No refunds are made for registration fees or course audit fees.

Students who wish to drop a course during summer sessions are responsible for initiating the drop through eCampus or by submitting the applicable form to the Office of the Registrar. The effective date used for the determination of any refund of tuition is the date on which the student submits the intent to drop the course to the Office of the Registrar, not the last date of attendance by the student. The official date of dropping the course cannot be backdated prior to the date on which the student submits the applicable form or notification to the Office of the Registrar.

Students who drop a course during summer sessions will receive a tuition refund in accordance with the following:

- Students who drop a course by the end of the second day of classes will receive a full refund of tuition for the course.
- Students who drop a course by end of the third day of classes will receive a 50 percent refund of tuition for the course.
    - Students who drop a course after the end of the third day of classes will receive no tuition refund for the course.

Students who drop a course due to an illness, injury, or psychological/emotional condition are eligible for a tuition refund in accordance with the schedule above. Tuition insurance may be purchased prior to the beginning of the summer sessions to cover tuition charges for medically related withdrawals after the second day of classes.

Students who are administratively withdrawn from all courses during summer sessions by the vice provost for student life or designee may be eligible for an allocation from the student hardship fund.

No tuition refunds are made because of curtailment of services resulting from strikes, acts of God, civil insurrection, riots or threats thereof, or other causes beyond the control of the University.

Students must submit a request for reconsideration of tuition charges or for an allocation from the student hardship fund not later than 90 days from the end of that term.

STUDY ABROAD AND DOMESTIC STUDY PROGRAMS

Students enrolled in study abroad and domestic study programs during the academic year or summer sessions operated by or affiliated with the University are charged a tuition rate consistent with the standard undergraduate tuition rates approved by the Board of Trustees. Current fees are available online at www.scu.edu/bursar/tuition.

Academic Year

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled in study abroad and domestic study programs during the academic year are charged the applicable per term Santa Clara tuition rate.

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled in a Santa Clara-operated study abroad program are charged the applicable Santa Clara tuition rate.

Tuition Refunds

Tuition refunds for students in study abroad and domestic study programs are governed by the applicable tuition refund schedule and any agreements governing SCU-operated, affiliated, and exchange programs.

Summer Terms

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled in study abroad and domestic study programs during summer terms are charged tuition at the applicable tuition rate.

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled in a Santa Clara-operated study abroad program during summer terms are charged tuition at the applicable tuition rate and application fee.

Tuition Refunds

Tuition refunds for students in study abroad and domestic study programs are governed by the applicable tuition refund schedule and any agreements governing affiliated and exchange programs.

ROOM AND BOARD CHARGES

The Board of Trustees, upon the recommendation of the president and the vice president for administration and finance, sets room and board charges for undergraduate student housing. Rates for specific types of accommodations and meal plans are available from the Housing Office. Students sign a University Housing Contract for a full academic year or, if entering housing mid-year, for the remainder of the academic year. A student who moves from, is evicted from, or otherwise does not reside in a University residence for the full term of their contract will be assessed room and board charges consistent with the terms of the University Housing Contract.

Room and board charges for study abroad and domestic study programs are assessed at the rate established by the University for each program.

FINANCIAL AID

Santa Clara University offers a broad range of financial assistance to undergraduate students administered through the Financial Aid Office. The University realizes that the quality of education offered at Santa Clara requires a serious commitment from the student and his or her family. As a partner in this endeavor, the University makes every effort to offer assistance to deserving students. The University makes financial aid awards to entering students based on an analysis of financial need and other relevant factors consistent with applicable federal, state, and University regulations. Depending on the student's eligibility, a financial aid package may include any combination of grants, scholarships, student employment, and loans.

SANTA CLARA SCHOLARSHIPS AND GRANTS

Presidential Scholarship at Entry

The Presidential Scholarship at Entry provides a full tuition scholarship to first-year students who demonstrate other qualities identified and emphasized by the president as critical to the University's mission. All Presidential Scholarship at Entry recipients are notified at the time of admission. The scholarship is renewable for 12 consecutive quarters, but must be coordinated with state or federal aid received. If other Santa Clara University funds are offered, all funds must be coordinated not to exceed the value of full tuition. Students must maintain satisfactory academic progress as defined by Santa Clara University and a 3.5 minimum grade point average to retain this award.

Provost Scholarship

The Provost Scholarship provides a tuition scholarship to first-year students who have assumed leadership roles in their schools and their communities. All Provost Scholarship recipients are notified at the time of admission. This scholarship is renewable for 12 consecutive quarters, but must be coordinated with federal, state, and University aid received. Students must maintain satisfactory academic progress as defined by Santa Clara University and a 3.0 minimum grade point average to retain this award.

Santa Clara University Dean's Scholarship

The Santa Clara University Dean's Scholarship is a merit-based scholarship awarded to first-year students. Award amounts vary depending on the number of recipients and available funds. The scholarship is renewable for 12 consecutive quarters, but must be coordinated with federal, state, and University aid received. In addition, the Santa Clara University Dean's Scholarship is a fixed amount and is not indexed to changes in tuition; therefore, the scholarship will not increase annually. Students must maintain satisfactory academic progress as defined by Santa Clara University and a 3.0 grade point average to retain this award.

Jesuit Ignatian Award

The Jesuit Ignatian Award is offered to academically outstanding students who have graduated from a Jesuit high school. Award amounts vary depending on the number of qualified students and availability of funds. The award is renewable for 12 consecutive quarters, but must be coordinated with federal, state, and University aid received. In addition, the Jesuit Ignatian Award is a fixed amount and is not indexed to changes in tuition; therefore, the scholarship will not increase annually. Students must maintain satisfactory academic progress as defined by Santa Clara University and a 2.0 grade point average to retain this award, and complete the Free Application for Federal Student Aid (FAFSA).

Santa Clara University Need-Based Grant

The Santa Clara University Need-based Grant is an award offered to students who demonstrate financial need. The Santa Clara University Need-based Grant is renewable for 12 consecutive quarters, but must be coordinated with federal, state, and University aid received. Award amounts vary depending on the number of qualified students and the availability of funds. Student must maintain satisfactory academic progress as defined by Santa Clara University, a 2.0 grade point average, and complete the Free Application for Federal Student Aid (FAFSA).

Santa Clara University Incentive Grant

The Santa Clara University Incentive Grant is a personal recognition award. It is neither an academic merit award nor a need-based award. It is awarded to those select individuals who will improve the characteristics of the entering class by virtue of the degree to which we are able to foster a stronger spirit of inclusive excellence among our students as measured by geographic, gender, economic, and ethnic diversity of first-year students. Award amounts vary depending on the number of qualified students and availability of funds. The Santa Clara University Incentive Grant is a fixed amount and is not indexed to changes in tuition; therefore, the scholarship will not increase annually. The award is renewable for 12 consecutive quarters and must be coordinated with federal, state, and University aid received. Students must maintain satisfactory academic progress as defined by Santa Clara University and a 2.0 grade point average to retain this award.

Alumni Family Scholar

A limited number of need-based scholarships are awarded each year to children and grandchildren of Santa Clara University undergraduate alumni. Candidates are identified from information contained in the application for admission and decisions are made by the Alumni Family Committee. Criteria include financial need, academic accomplishments, extracurricular activities, and demonstrated leadership ability. Students who are selected to receive a scholarship will be notified with an award letter from the Financial Aid Office. Award amounts vary depending on the number of qualified students and availability of funds.

Santa Clara University Third-Child Grant

The Santa Clara University Third-Child Grant is awarded to families with three or more dependent children simultaneously enrolled in undergraduate programs at Santa Clara University. A tuition grant of 50 percent will be awarded to the student who is farthest along in his or her studies. To apply, parents must submit a written request along with a copy of their most recent tax return that lists all three Santa Clara students as dependents and complete the Free Application for Federal Student (FAFSA). The award can be renewable for additional academic years provided that three or more dependent children remain simultaneously enrolled in an undergraduate program, and must be coordinated with federal, state, and University aid received.

National Merit Scholarship

The National Merit Scholarship Corporation in conjunction with the Financial Aid Office, awards four merit-based scholarships to selected academically talented high school seniors for undergraduate studies at Santa Clara University. Prospective Santa Clara University first-year students who have been selected as National Merit Finalists and who have listed Santa Clara University as their "first- choice" school on the National Merit Scholarship Application are eligible for consideration. Santa Clara University-sponsored National Merit Scholars will receive $2,000 per year, renewable for up to four years of undergraduate study.

Athletic Scholarships

The Department of Athletics awards scholarships to student-athletes competing in intercollegiate sports sponsored by the University in accordance with the regulations of the National Collegiate Athletic Association (NCAA) and the West Coast Conference. Depending on the sport and the student-athlete's eligibility, individual scholarships vary up to the full cost of attendance as defined by NCAA regulations. The Financial Aid Office will coordinate athletic scholarships with other financial aid awards in accordance with applicable federal, state, and University regulations.

Community Facilitator Grants

Students who are community facilitators in Residential Learning Communities receive a grant generally equivalent to the cost of room and board for their service in that role. The Financial Aid Office will coordinate community facilitator grants with other financial aid awards in accordance with applicable federal, state, and University regulations.

Faculty and Staff Tuition Remission

Santa Clara University Tuition Remission

The tuition remission program provides tuition costs for Santa Clara University employees and their dependents, provided the employee is working an equivalent of 30 hours or more per week. Employees working an equivalent of 20 to 29 hours per week will receive tuition remission on a pro-rated basis, and the benefit is not available to their dependents. Tuition remission does not include other costs such as books, laboratory, application, service, and other fees. All charges other than tuition must be paid to the University in the same manner as required of other students.

FACHEX

The Faculty Administrator's Children Exchange Program (FACHEX) provides tuition costs for Santa Clara University employees and their dependents, provided the employee is working an equivalent of 30 hours or more per week. Employees working an equivalent of 20 to 29 hours per week will receive tuition remission on a pro-rated basis, and the benefit is not available to their dependents. FACHEX does not include other costs such as books, laboratory, application, service, and other fees. All charges other than tuition must be paid to the University in the same manner as required of other students.

Tuition Exchange Grants

The tuition exchange program is a national scholarship exchange program for institutions of higher education. Children of eligible employees may apply for undergraduate admission to one of the participating institutions and, if accepted, are eligible for a tuition scholarship subject to the terms and conditions set by the accepting institution. Tuition Exchange, Inc., is a partnership of approximately 560 colleges and universities offering competitive tuition exchange scholarships. Tuition Exchange scholarships are not a guaranteed award. Each member institution is obligated to maintain a balance between students sent on the exchange (exports) and students received on the exchange (imports).

FEDERAL AND CALIFORNIA GRANTS

Federal Pell Grant

The Federal Pell Grant is a need-based grant awarded to students in accordance with eligibility requirements set by the United States Department of Education. The maximum amount of a Federal Pell Grant is set in the funding legislation adopted by Congress. The Federal Pell Grant can be used for tuition, fees, and living expenses. Students must complete the Free Application for Federal Student Aid (FAFSA) to be considered for a Federal Pell Grant. *Note: The Federal Pell Grant, as with all federal grants, is subject to federal funding.*

Federal Supplemental Educational Opportunity Grant

The Federal Supplemental Educational Opportunity Grant (FSEOG) is a need-based grant available to students with the most exceptional need who have not yet received a bachelor's degree. Priority is given to students who are eligible for the Federal Pell Grant and then to other undergraduate students with the greatest demonstrated need. *Note: FSEOG, as with all federal grants, is subject to federal funding.*

Federal Teacher Education Assistance for College and Higher Education Grant

The Teacher Education Assistance for College and Higher Education (TEACH) Grant program provides grants of up to $4,000 per academic year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families. Eligible students must complete the Free Application for Federal Student Aid (FAFSA), be a U.S. citizen or eligible noncitizen, and maintain a cumulative grade point average of at least 3.25. If the student fails to complete the required service obligation, all amount of TEACH grants received will be converted to an unsubsidized Federal Direct Loan. *Note: The TEACH Grant, as with all federal grants, is subject to federal funding.*

California Grants

The California Grant (Cal Grant) program provides state-funded awards to California residents based on both academic achievement and financial need. Eligibility criteria for the Cal Grant A and Cal Grant B programs are available from the California Student Aid Commission. *Note: Cal Grant, as with all state grants, is subject to state funding.*

The Cal Grant A program assists with tuition and fees at public and independent colleges. The California Student Aid Commission sets the current maximum award for a Cal Grant A based on the funding legislation adopted by the state of California. A Cal Grant A award is made to every graduating high school senior who has at least a 3.0 grade point average, meets the financial and academic requirements, and submits an application by the applicable deadline.

The Cal Grant B program provides a living allowance and tuition assistance for students who demonstrate substantial financial need and come from a very low-income household. Awards for most first-year students are limited to an allowance for books and living expenses. When renewed or awarded beyond the first year, the award also helps pay for tuition and fees. The awards for tuition and fees are the same as those for Cal Grant A.

OTHER GRANTS AND SCHOLARSHIPS

Army ROTC Scholarships

Scholarships are awarded to undergraduate students through the Army Reserve Officers Training Program (ROTC). Two-year, three-year, and four-year scholarships are awarded under the program to eligible ROTC students. The ROTC scholarships may cover full tuition from funds provided by the Army and may cover standard on-campus room and board charges from a University grant. In addition, recipients receive a tax-free stipend during the academic year and an allowance for books and other educational items. Students who accept Army ROTC scholarships incur a military obligation that can be fulfilled by serving part-time in the Army National Guard or Army Reserve, or by serving full-time on Army active duty.

Private Scholarships

Students receiving private scholarships must notify the Financial Aid Office if they are receiving any other form of financial aid. Private scholarship checks should be sent by the awarding organization to the Financial Aid Office to ensure appropriate and timely processing. The Financial Aid Office will coordinate private scholarships with other financial aid awards in accordance with applicable federal, state, and University regulations.

STUDENT EMPLOYMENT

Campus Employment

Part-time jobs for undergraduate students are available in many offices and departments on campus. Campus job listings are maintained by the Student Employment Office.

Students earn an hourly wage at least at the current minimum wage rate for the state of California and may be paid at a higher rate depending on the type of work or skills required.

Federal Work-Study Program

The Federal Work-Study Program is a need-based student employment program under which students can work up to 19 hours per week on campus or through an approved off-campus site. Students earn an hourly wage at least at the current minimum wage rate for the state of California and may be paid at a higher rate depending on the type of work or skills required. Students receive a paycheck each period and can use the money for educational or living expenses. Earnings under the program are taxable.

LOANS

Federal Perkins Loans

Perkins Loans are federally funded low-interest loans provided to undergraduate and graduate students based on financial need and administered by the University. Depending on funds available, a student may borrow up to $5,500 per year while enrolled as an undergraduate student. Repayment of this federal loan begins nine months after completion of the deferment period or upon graduation. The interest rate on a Federal Perkins loan is 5 percent fixed.

William D. Ford Federal Direct Loans

William D. Ford Federal Direct Loans are federally funded low-interest loans provided to undergraduate students and administered by the United States Department of Education. Under the Federal Direct Loan program, a student may borrow funds for educationally related expenses and defer repayment until six months after graduation or when the enrollment status drops below half-time (e.g., less than 6 units). If an undergraduate is an independent student or a dependent student whose parents were denied for a Federal Direct PLUS Loan, the student can borrow more funds through the Federal Direct Loan program based on their academic grade level. To receive a subsidized Federal Direct Loan, a student must have financial need. Interest is not charged on a subsidized Federal Direct Loan while the student is enrolled at least half-time. Eligibility for unsubsidized Federal Direct Loans is determined after eligibility for subsidized Federal Direct Loans is decided. Interest accrues on unsubsidized Federal Direct Loans during all periods, including while the student is enrolled in school and during any grace or deferment periods.

Federal Direct PLUS Loan

A parent or step-parent of a dependent student may apply for a Federal Direct PLUS Loan through the William D. Ford Federal Direct Loan program to help cover the cost of educational expenses. To be eligible for a Federal Direct PLUS Loan, a student must be a U.S. citizen or eligible noncitizen and must be enrolled at least half-time. A parent may borrow up to the cost of attendance minus all other financial aid for each undergraduate child. An origination fee is deducted from the disbursement of the loan.

FINANCIAL AID ELIGIBILITY

Enrollment Status and Financial Aid Eligibility

Undergraduate students receiving financial aid must meet general University eligibility requirements and any applicable eligibility criteria associated with specific federal, state, or University aid programs from which they are receiving support. Financial aid recipients generally must be enrolled as full-time students in a minimum of 12 units each quarter in which aid is received, must be making satisfactory progress toward a degree, and must maintain a minimum cumulative grade point average of 2.0. Financial aid awards to students who drop below full-time status (e.g., less than 12 units) will be adjusted unless certification for continuing eligibility is granted by the Financial Aid Office. Eligibility for financial aid is limited to a maximum of 12 quarters of undergraduate study. Financial aid awards will cease after the 12 quarters of enrollment in a postsecondary institution unless certification for continuing eligibility is granted by the Financial Aid Office. Specific financial aid awards may have additional requirements for continuing eligibility.

Academic Standing and Satisfactory Progress Requirements

All financial aid recipients must maintain good academic standing and be making satisfactory progress toward a degree according to the University standards and applicable federal and state regulations. Students are evaluated for satisfactory academic progress each quarter.

Qualitatively

Students must maintain a cumulative GPA of 2.0 or higher.

Note: Some Santa Clara University aid programs require a higher cumulative grade point average than the federal minimum requirement.

Quantitatively

Students must maintain a cumulative 75 percent completion rate for all units attempted toward their academic programs.

Maximum Attempted Units Allowed

Students must complete the requirements for their academic programs within 150 percent of the minimum units required to complete their academic programs. Units attempted also include all units transferred into Santa Clara University from prior institutions that can be used to satisfy students' academic program requirements. Students who have reached their maximum attempted units allowed are ineligible for additional financial aid. Students may appeal for financial aid probation status if they feel their circumstances warrant an exception to this standard.

Unit Requirements Completion Requirements

Undergraduate Students are required to complete 27, 54, 81, 108 cumulative quarter units by the end of their third, sixth, ninth, 12th, and 15th quarters of enrollment, whether at Santa Clara University or elsewhere, in order to maintain satisfactory academic progress.

Unit Requirements

All financial aid recipients must register for and maintain a full course load of 12 units or more per quarter, if the aid was awarded on this basis. Students who drop below 12 units will see their financial aid adjusted. Full-time and part-time status is defined as follows:

- Full-time: 12 or more units
- Three-fourths time: 9 to 11 units
- Half-time: 6 to 8 units
- Less than half-time: fewer than 6 units

Courses Incompletes, Withdrawal, Failures, and/or Repetitions

Incompletes (I), Withdrawals (W), Failures (F), and/or repeated courses will adversely affect a student's completion rate. Students must complete the minimum number of units to fulfill federal, state, and University requirements. Completion rates are calculated cumulatively and will include all quarters that the student was enrolled, whether or not the student received financial aid.

Students who wish to withdraw from Santa Clara University during a quarter must complete a withdrawal form and an exit interview in the Drahmann Advising and Learning Resource Center. If the formal requirements for withdrawal are met, the student's registration will be canceled without academic penalty. A withdrawal notation (W) will be assigned for each course from which the student withdraws after the fourth week of the quarter. Students who leave Santa Clara University during a quarter without formally withdrawing are subject to failing grades in all courses in which they were registered and are ineligible for refund of fees.

IMPORTANT: Any student leaving Santa Clara University at the conclusion of any quarter should also complete the standard withdrawal process.

Repetition of Courses

Students may only repeat a course in which they have received a grade of less than C minus (C–). In such cases, the grades of both the original and the repeated course are included in the calculation of the student's grade point average, but units are awarded toward graduation only once for each course passed. Certain courses, such as special topics courses and performance courses, are repeatable, and students will receive a grade and units for each successful completion.

Evaluation

All students enrolled at Santa Clara University are evaluated for satisfactory academic progress at the end of each quarter after the Office of Registrar has released official grades.

Definitions of Satisfactory Academic Progress

Financial Aid Eligible

Students are eligible for financial aid as long as they are enrolled in classes and they fall into one following categories:

- Students with no satisfactory academic progress issues at all
- Students who have appealed successfully and have successfully completed their warning/probation period of enrollment
- Students who have successfully completed their warning/probation period of enrollment and are following their academic plan
- Students who have met satisfactory academic progress after being ineligible

Financial Aid Warning

The failure to make satisfactory academic progress. The student is still eligible for financial aid for one period of enrollment and must make satisfactory academic progress by the end of that period of enrollment. Financial aid eligibility will be placed on probation, if this does not occur. Warning status may not be appealed.

Financial Aid Probation

The failure to make satisfactory academic progress after a warning period. The student is eligible to appeal. If the appeal is approved, the student can continue financial eligibility for another period of enrollment under a suspended probationary status. Students may also choose not to appeal and attempt to regain financial aid eligibility by meeting satisfactory academic progress while paying out-of-pocket (without any financial aid).

Financial Aid Suspended

The failure to make satisfactory academic progress, but the student appealed their probationary status and was financial aid eligible for the period designated in the granted appeal.

Financial Aid Ineligible

The failure to make satisfactory academic progress (this status also applies to appeals that are not approved). The student is not eligible for financial aid until cumulative satisfactory academic progress standards are met. The student may not appeal.

Appeal Process

There may be extenuating circumstances encountered by a student that may affect his/her ability to be academically successful during an enrollment period. These circumstances include personal injury or illness that occurs during an enrollment period; death of an immediate family member or legal guardian during an enrollment period; or other documented circumstances that were unexpected in nature and beyond control of the student. In these cases, cumulative grade point average or completion rate may decline resulting in the student not meeting the minimum qualitative and quantitative standards previously described.

If the student wishes to appeal the suspension from financial aid eligibility, a Satisfactory Academic Progress Appeal form must be submitted to the Financial Aid Office. If the student is able to meet the Satisfactory Academic Progress policy within one enrollment term, the financial aid administrator and the Financial Aid Satisfactory Academic Progress

Reinstatement Contract needs to state the minimum grade point average and the number of credit hours that a student must obtain in order to be compliant at the next assessment period. A review will be done at the end of the quarter to insure that the student is meeting the terms of the contract. If the student is not meeting those terms, further eligibility for aid is canceled immediately.

Note: Before filing an appeal for reinstatement of financial aid, it is important that the student meet with an academic advisor and/or visits the Drahmann Advising and Learning Resource Center in order to explore ways of eliminating deficiencies and to establish a realistic plan towards graduation.

Appeal Denials

Students whose appeal was not approved will receive information regarding other alternatives available to them. Some options include:

- Continue enrollment at Santa Clara University without any financial assistance.
- Continue enrollment at Santa Clara University with the assistance of a private loan; the Financial Aid Office can assist the student with additional information about these loans.
- Withdraw from Santa Clara University to make up a portion or all of the deficient units at another institution. *IMPORTANT: The student will have to file an additional appeal to have aid reinstated once s/he has completed the required units and demonstrated the ability to continue at Santa Clara University without incurring additional deficiencies.*

Loss of Eligibility

A student who has lost eligibility to participate in federal, state, and University aid programs for reasons of academic progress can regain that eligibility only by enrolling at Santa Clara University at his/her own expense. The mere passage of time will not restore eligibility to a student who has lost eligibility for failure to make satisfactory academic progress. Students who have been dismissed from Santa Clara University for academic reasons, but who are subsequently re-admitted are not automatically eligible to participate in federal, state, or institutional aid programs and will be placed on financial aid warning. Re-admission decisions are separate from funding decisions.

Regaining Eligibility

Students who failed to meet satisfactory academic progress and who choose to enroll without financial aid may request a review of their academic record after any term in which they are enrolled without the receipt of financial aid. If the standards are met at the time of review, eligibility may be regained for subsequent terms of enrollment in the academic year.

Study Abroad Programs

Santa Clara University students participating in study abroad and domestic public sector study programs operated by or affiliated with the University are eligible for Santa Clara University financial aid and tuition remission as well as federal and state aid consistent with the policies and practices applicable to students enrolled for on-campus classes. Tuition and room and board rates associated with the specific program will be factored into the determination of the financial aid award consistent with applicable policies and practices. The total amount of tuition remission for the academic year cannot exceed the annual tuition rate for that year. Students with private scholarships should contact the donor for prior approval to

use funds for study abroad or domestic study programs. Students from other colleges and universities enrolled in Santa Clara University study abroad programs are not eligible for Santa Clara University financial aid.

Veterans and Veterans' Dependents Assistance

Santa Clara University has been certified by the Department of Veterans Affairs as qualified to enroll students under applicable federal legislation and regulations, including Chapter 35 (child of a deceased or 100 percent disabled veteran, widow of any person who died in the service or died of a service-connected disability, or wife of a veteran with a 100 percent service-connected disability), Chapter 31 (rehabilitation), Chapter 30/1606 (active duty Montgomery G.I. Bill), and Chapter 33 (Post 9/11 GI Bill). Individuals interested in attending under any of the veteran's assistance programs should contact the Veterans Administration and the University Office of the Registrar.

CANCELLATION OF FINANCIAL AID AND RETURN OF FUNDS

Students who withdraw from the University and who have federal financial aid are subject to the federal regulations applicable to the return of Title IV funds. These regulations assume that a student earns his or her financial aid based on the period of time he or she remains enrolled during a term. A student is obligated to return all unearned federal financial aid funds governed under Title IV other than those earned under the college work-study program.

Unearned financial aid is the amount of disbursed Title IV that exceeds the amount of Title IV aid earned in accordance with the federal guidelines. During the first 60 percent of the term, a student earns Title IV funds in direct proportion to the length of time he or she remains enrolled. That is, the percentage of time during the term that the student remains enrolled is the percentage of disbursable aid for that period that the student has earned. A student who withdraws after the 60 percent point of the enrollment term earns all Title IV aid disbursed for the period. The amount of tuition and other charges owed by the student plays no role in determining the amount of Title IV funds to which a withdrawn student is entitled.

All funds must be returned to federal programs before funds are returned to state or University financial aid programs or to the student. The return of funds allocation will be made in the following order for students who have received Federal Title IV assistance:

- Unsubsidized Federal Direct Loans (other than Direct PLUS Loans)
- Subsidized Federal Direct Loans
- Federal Perkins Loans
- Federal Direct PLUS Loans
- Federal Pell Grants for which a return is required
- Federal Supplemental Educational Opportunity Grants for which a return is required
- TEACH Grants for which a return is required
- Iraq and Afghanistan Grants for which a return is required

STUDENT VERIFICATION OF INFORMATION

The United States Department of Education requires all institutions disbursing federal financial aid funds to verify the accuracy of the information students and their families submit as a basis for the award of aid. Santa Clara University complies with this requirement by participating in the Federal Quality Assurance Program. Each year, a percentage of students receiving federal financial aid funds are randomly selected for verification of the information on which their awards were based. Students selected for verification may be required to submit additional documents and verify information, such as household size and number of family members enrolled in college. The University reserves the right to request similar information for verification purposes for any student awarded aid and to verify the attendance of other children in college. Information collected may result in changes to a financial aid award and, in some cases, the repayment of funds already received. Failure to comply with the request for this information will result in the cancellation of financial aid funds.

BILLING AND PAYMENT PROCEDURES

STUDENT ACCOUNTS AND BILLING

Students assume responsibility for all costs incurred as a result of enrollment at Santa Clara University and agree to abide by applicable University policies and procedures.

Students may designate a third party (e.g., parent, family member, spouse) to be an authorized payer for their student account. That individual is authorized to access the student's billing statements and to make payments on the student's behalf. However, it is still the student's responsibility to make sure all financial obligations are completed by the published deadlines. Once authorization is completed, the authorized payer will be sent notification on the login process via the email address provided by the student. Authorized payers do not have access to any other student account information via this website.

Students receive monthly bills electronically via a third-party vendor that are accessible through University eCampus. A billing notification will be sent to the student's University email address and to the email address of any payer authorized by the student. Students may also forward their billing statements electronically to any third party they authorize for remittance. Information on a student's account cannot be provided to any third party payer unless a completed Family Educational Rights and Privacy Act form authorizing its release by the student is on file with the University.

Students are obligated to pay the applicable tuition and fees associated with their enrollment status by the published term payment deadline. Students enrolling after the initial payment deadline may be required to pre-pay for their enrollment. Registered students who do not withdraw formally from the University are responsible for all tuition and fees assessed to their account as well as any penalty charges incurred for nonpayment. Nonattendance does not relieve the student of his or her obligation to pay tuition and fees.

PAYMENT METHODS

Santa Clara University offers a variety of payment methods to students and their parents to assist with their financial obligations.

Payment by Electronic Check

A student or authorized payer may make online payments by authorizing a fund transfer directly from their personal checking or savings account through a third-party website accessible via the University eCampus system. The payer is able to make electronic check payments online without incurring a transaction fee.

Payment by Mail

Payments for student account charges are accepted by mail utilizing the University's cash management service lockbox. The payer should download a copy of the student's billing statement, enclose it with a personal or cashier's check payable to "Santa Clara University," and mail both items to: Santa Clara University Bursar's Office, P.O. Box 742657, Los Angeles, CA 90074-2657.

Payment in Person

Payments for student account charges may be made in person by cash or check only at the Enrollment Services Center located in the Admissions and Enrollment Services Building. The Office is not able to accept any electronic form of payment, including debit or credit cards. However, there are computer kiosks located in the Admissions and Enrollment Services Building for the convenience of students and their payers who wish to make electronic payments.

EXTENDED PAYMENT OPTIONS

For students and their families wishing to spread payments over a period of time, the University offers term payment plans, which are available through the online billing system via eCampus. There is a modest fixed fee to enroll in these plans, but no interest is charged during the payment term. Information about these plans is available on the Bursar's Office website.

DELINQUENT PAYMENTS

If all charges on a student's account have not been cleared by payment, financial aid, or loan disbursement, a late payment fee will be assessed to the student's account and a hold will be placed on the student's record. A hold on a student's record prevents the release of transcripts or diplomas, prevents access to any registration services, and may limit access to other University services. Students who have unpaid accounts at the University or who defer payment without approval are subject to dismissal from the University. All unpaid balances will accrue 10 percent interest per annum on the balance remaining from the date of default in accordance with California state law.

Delinquent student accounts may be reported to one or more of the major credit bureaus and may be forwarded to an outside collection agency or an attorney for assistance in recovering the debt owed to the University. The student is responsible for all costs incurred to

collect outstanding debt, including but not limited to accrued interest, late fees, court costs, collection fees, and attorney fees. All outstanding bills and costs of collection incurred by the University must be paid in full prior to a student re-enrolling at the University.

BILLING DISPUTES

If a student believes there is an error on his or her billing statement, a written explanation should be forwarded to: Santa Clara University, Bursar's Office, 500 El Camino Real, Santa Clara, CA 95053-0615. The Bursar's Office must receive written correspondence within 60 days from the billing statement date on which the error appeared. Communication can be made by telephone, but doing so will not preserve the student's rights.

Communication should include the student's name, SCU identification number, the amount in question, and a brief explanation. Payment for the amount in question is not required while the investigation is in progress. An adjustment will be made on the student's account for any incorrect charges. If the amount in question is found to be valid, payment must be submitted to the Bursar's Office immediately upon notification.

REFUND PAYMENTS

Refunds will be granted only for student accounts reflecting a credit balance. A refund will not be granted based on anticipated aid. All financial aid must be disbursed into a student's account before a refund is processed. It is the student's responsibility to make sure that all necessary documentation is completed and submitted to the Financial Aid Office so that aid can be disbursed properly and in a timely fashion. Payment received by personal check will have a 21-day hold before a refund can be issued; a 5-day hold for electronic check payments.

TUITION INSURANCE PROTECTION

Students and their families may protect themselves against financial loss due to an unexpected withdrawal from the University, for medical reasons, by purchasing tuition insurance coverage. The University has identified an insurance company, A.W.G. Dewar, Inc., to provide an optional tuition insurance protection plan. This plan is designed to protect from loss of funds paid for tuition should it be necessary to withdraw completely from the University during the term for medical reasons. Information on the tuition insurance plan is available from the Bursar's Office and on its website.

EDUCATIONAL TAX CREDITS

Students may be eligible for a higher education tax credit designed to help students and their parents finance the cost of education. Tax credits are based on the amount of qualified tuition and fees, less grants and other tax-free educational assistance, and the taxpayer's adjusted gross income. Students enrolled in an eligible degree program may qualify for a Hope Scholarship Credit or Lifetime Learning Tax Credit. Specific information is available from the Internal Revenue Service.

10

University Honor Societies and Awards

HONOR SOCIETIES

Santa Clara University is proud to host 24 prestigious national honor societies in the liberal arts, sciences, business administration, and engineering. These societies reflect a long tradition of academic excellence, tracing their origins back at least 50 years. Some date from the 19th century and one dates from the 18th century.

Alpha Delta Gamma

Alpha Delta Gamma, the national medieval and Renaissance studies honorary society, was founded in 1993 by the Program in Medieval and Renaissance Studies of the College of William and Mary in order to recognize faculty and students who share a love for the European Middle Ages and Renaissance. The Alpha chapter at Santa Clara was founded in 2000. Alpha Delta Gamma strives to encourage the highest ideals of scholarship and intellectual attainment. To be eligible, a student must be a declared candidate for a minor in medieval and Renaissance studies, have completed at least three courses in the program, and have earned a grade point average of 3.0 overall and 3.1 for the courses in the program.

Alpha Kappa Delta

Alpha Kappa Delta, the national sociology honor society, was founded at the University of Southern California in 1920. The Santa Clara University chapter, Alpha Mu, was founded in 2000. The society's primary goal is to encourage social research for the purpose of service. To be invited to join, a student must be a sociology major of junior or senior standing, have a grade point average of at least 3.3 overall and 3.5 in the major, have completed at least four sociology courses at Santa Clara, and have successfully completed at least Sociology 119 and 120 in the research sequence.

Alpha Psi Omega

Alpha Psi Omega is the national theatre arts honor society founded in 1925 at Fairmont College. Chapters are called "casts," and the Alpha Gamma Psi cast at Santa Clara University was started in 2000. Alpha Psi Omega has sponsored the formation of theatre honors societies with the aim of encouraging dramatic production at every step in a person's academic career. The Alpha Gamma Psi cast provides an opportunity for student leadership and a regard for academic excellence and active participation in the Department of Theatre and Dance.

Alpha Sigma Nu

Alpha Sigma Nu, the national Jesuit honor society, was founded at Marquette University in 1915. The Santa Clara University chapter was established in 1942. Alpha Sigma Nu upholds the Jesuit values of academic excellence and service to the University and the community. Juniors and seniors who are in the top 15 percent of their class and have a demonstrated record of service and loyalty to the Jesuit ideals of education are eligible for membership.

Beta Beta Beta

Beta Beta Beta, the national honor and professional society for students of the biological sciences, was founded in 1922, and the Santa Clara University chapter was established in 1994. As a national organization, this society emphasizes a threefold program for the local chapter members: to stimulate scholarship, disseminate scientific knowledge, and promote biological research. Membership is reserved for those who achieve a superior academic record and demonstrate a special aptitude for the life sciences. Associate membership is for students with exceptional potential who are just beginning formal study and research in biology.

Beta Gamma Sigma

Beta Gamma Sigma, the national business honor society, was founded in 1913. The Santa Clara chapter was founded in 1955. The mission of Beta Gamma Sigma is to encourage and honor academic achievement in the study of business and personal and professional excellence. Membership is offered to students who show promise of success in the field of business and rank in the top 10 percent of their junior class or in the top 10 percent of their senior class.

Eta Sigma Phi

Eta Sigma Phi, the national classics honorary society, was founded at the University of Chicago in 1914 and became a national organization in 1924. The Epsilon Psi chapter of Eta Sigma Phi was founded at Santa Clara University in 1987. Its primary purposes are to further the spirit of cooperation and goodwill among members of the classics profession, to stimulate interest in the study of the classics, and to increase knowledge of the art, literature, history, and culture of ancient Greece and Rome. To be eligible for nomination to membership, a student must be at least a sophomore, must have completed at least three classics courses including Latin or Greek, and must have a minimum grade-point average of 3.0 both in classics courses and overall.

Kappa Delta Pi

Kappa Delta Pi, an international education honor society, was founded in 1911 at the University of Illinois. The Santa Clara chapter was established in 1996. Organized to recognize excellence in education, Kappa Delta Pi elects to membership those students who exhibit the ideals of scholarship, high personal standards, and promise in teaching and allied professions. To be eligible for membership, students must have completed five quarters of college work, rank in the upper 20 percent of their class, and have a cumulative grade point average of 3.25 or better.

Lambda Alpha

Lambda Alpha, the national anthropology honor society, was founded in 1968 at Wichita State University. The Santa Clara chapter was established in 1999. The society seeks to encourage and stimulate scholarship and research in anthropology by recognizing and honoring superior achievement in the discipline and among students. To be eligible for membership, students must have achieved junior status, completed five courses in anthropology, have a cumulative grade point average of 3.3, and have a minimum grade point average of 3.5 in anthropology.

Lambda Pi Eta

Lambda Pi Eta, the official communication studies honor society of the National Communication Association, was founded at the University of Arkansas in 1985. As an accredited member of the Association of College Honor Societies, Lambda Pi Eta (LPH) has active chapters at four-year colleges and universities worldwide. Theta Rho, the Santa Clara University chapter, was established in 1999. LPH represents what Aristotle described in *The Rhetoric* as three ingredients of persuasion: logos (Lambda), meaning logic; pathos (Pi), relating to emotion; and ethos (Eta), defined as character credibility and ethics. The goals of Lambda Pi Eta are to recognize, foster, and reward outstanding scholastic achievement; stimulate interest in the field of communication; provide an opportunity to discuss and exchange ideas about the field; establish and maintain close relationships and understanding between faculty and students; and explore options for further graduate studies. Members must be a communication major or minor in good standing with the university; have completed at least 90 units of coursework with 18 in communication; have an overall grade point average of 3.0 overall and 3.5 in communication courses; and rank in the top 35 percent of their graduating class. Students are also required to complete community projects.

Phi Alpha Theta

Phi Alpha Theta, the international history honor society, was founded in 1921 at the University of Arkansas. The Lambda Upsilon chapter was established at Santa Clara University in 1966. The chapter has been active in encouraging student research in history by sponsoring an annual undergraduate research journal and attending the annual regional conference. Members are elected to membership on the basis of excellence in the study and writing of history.

Phi Beta Kappa

Phi Beta Kappa, the oldest national honor society, was founded in 1776 in Williamsburg, Virginia, by students at the College of William and Mary. The Pi chapter at Santa Clara University was installed in 1977. Its purpose is to celebrate excellence in all scholarly endeavors and to encourage educational breadth, including languages, mathematics, the sciences, and the humanities. Election to membership in Phi Beta Kappa signifies that a student has achieved an outstanding academic record as indicated by grades and intensive study in both a second language and college mathematics, as well as a general breadth in coursework.

Phi Lambda Upsilon

Phi Lambda Upsilon, the national chemistry honor society, was founded in 1899 at the University of Illinois "for the promotion of high scholarship and original investigation in all branches of pure and applied chemistry." It was the first honor society dedicated to a single scientific discipline. Santa Clara University participates in the membership-at-large program, which extends recognition to outstanding chemistry students who are not enrolled at an institution where an active chapter of the society is located. Members must have senior standing, be in the top 20 percent of their chemistry class, and have a minimum grade point average of at least 3.5.

Phi Sigma Iota

Phi Sigma Iota, the international foreign language honor society, was founded in 1922 at Allegheny College. The Beta Delta chapter was installed at Santa Clara University in 1982. The society recognizes outstanding ability and achievement in languages, literatures, and linguistics. It stimulates advanced work in these fields, fosters intercultural understanding, and promotes a spirit of amity between our own people and other peoples of the world. Juniors and seniors with at least four advanced-content courses completed in a qualifying language, a grade point average of 3.5 in that language, and a cumulative grade point average of 3.0, may be eligible for membership.

Phi Sigma Tau

Phi Sigma Tau, the national honor society in philosophy, was founded at Muhlenberg College in 1930 as Alpha Kappa Alpha. In 1955, it was incorporated as Phi Sigma Tau. The Santa Clara University chapter received its charter in 1986. Its essential purpose is to promote ties between philosophy departments in accredited institutions and students in philosophy nationally. To be eligible for membership, students must have completed five quarters of college work, rank in the upper 35 percent of their class, and have completed at least three courses in philosophy with a grade point average of 3.4 or higher.

Pi Mu Epsilon

Pi Mu Epsilon, the national mathematics honor society, was incorporated in 1914 at Syracuse University. The California Eta chapter was founded in 1967 at Santa Clara University. The stated purpose of the society is to engage in activities designed to promote the mathematical and scholarly development of its members. Students may be elected to membership if they have completed at least two courses in mathematics in addition to a year of calculus, and have completed their mathematical and general college courses with distinction.

Pi Sigma Alpha

Pi Sigma Alpha, the national political science honor society, was founded at the University of Texas in 1920. Santa Clara University's chapter, Rho Epsilon, was founded in 1988. The purpose of the society is to honor students and practitioners in political science and related subfields. Membership is granted to senior political science majors with a grade point average of 3.5 in political science and 3.25 overall. Juniors with a grade point average of at least 3.7 in political science are also eligible for membership.

Pi Tau Sigma

Pi Tau Sigma, the national mechanical engineering honorary society, was founded in 1915 at the University of Illinois. The Santa Clara University Alpha Epsilon chapter was granted its charter in 1991. The objectives are to foster high ideals in the engineering profession, stimulate and support departmental activities, promote professional welfare, and develop leadership and citizenship. Members are selected from the top 25 percent of the junior class and top 35 percent of the senior class in the Department of Mechanical Engineering.

Psi Chi

Psi Chi, the international psychology honor society, was founded in 1929. The Santa Clara University chapter was established in 1991. The purpose of the society is to encourage, stimulate, and maintain scholarship of the individual members in all fields, particularly in psychology, and to advance the science of psychology. To be eligible for membership in the SCU Chapter, students must have completed 15 or more units in psychology with a grade point average of 3.3 (overall and in psychology), be a declared psychology or public health major, and rank in the upper 35 percent of their class.

Sigma Pi Sigma

Sigma Pi Sigma, the national physics honor society, was founded in 1921 at Davidson College in North Carolina. The Santa Clara University chapter was founded in 1969. Sigma Pi Sigma endeavors to help students attain a clearer understanding of the powers of science, to promote further interest in the advanced study of physics, to foster the spirit of scientific research, and to encourage a professional spirit and collegiality among students of physics. Members are selected from the upper 25 percent of their class and must also have a grade point average of 3.25 in physics and mathematics.

Sigma Tau Delta

Sigma Tau Delta, the national English honor society, was founded in 1924 at Dakota Wesleyan University. The Santa Clara University chapter, Phi Phi, was established in 1987. Sigma Tau Delta recognizes scholarly achievement in the English language and in literature in all its aspects, including creative and critical writing. Members must be in the upper 33 percent of their class and must also have a grade point average of 3.5 in English.

Sigma Xi

Sigma Xi, the national scientific research society, was founded at Cornell University in 1886. The Santa Clara chapter was established in 1967. The purpose of the society is to encourage original investigation in pure and applied science. The requirements for full membership include noteworthy achievements in research as demonstrated by publications, patents, written reports, or a dissertation. Students who have demonstrated an aptitude for original scientific research are eligible for associate membership.

Tau Beta Pi

Tau Beta Pi is the only engineering honor society representing the entire engineering profession. It is the nation's second-oldest honor society, founded at Lehigh University in 1885 to mark in a fitting manner those who have conferred honor upon their Alma Mater by distinguished scholarship and exemplary character as students in engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in engineering colleges. The Santa Clara chapter was established in 1956. Engineering seniors in the upper 20 percent of their class are eligible.

Theta Alpha Kappa

Theta Alpha Kappa, the national theology and religious studies honor society, was founded in 1976 at Manhattan College. The Santa Clara chapter, Alpha Phi, was granted a charter in 1981. Theta Alpha Kappa seeks to encourage research, good teaching, and publication; to encourage an exchange of learning and thought among scholars; and to bring together students and teachers in intellectual and social fellowship. Religious studies majors and minors with a grade point average of 3.5 and a cumulative average of 3.0 who have completed 18 religious studies course units and are in the top 35 percent of their class are eligible for admission to the society.

Upsilon Pi Epsilon

Upsilon Pi Epsilon, the computing sciences honor society, was founded at Texas A&M University in 1967. The Santa Clara Lambda chapter was established in 1990. Its purpose is to promote high scholarship and original investigation in the computing sciences. Students must be majors in a computing discipline. Undergraduates must possess a 3.25 grade point average overall and in the major, and must have completed at least 64 units of credit and rank in the upper third of their class.

UNIVERSITY AWARDS

Peter-Hans Kolvenbach, S.J., Award

Established in 2001 on the occasion of the sesquicentennial of Santa Clara University, in honor of The Very Reverend Peter-Hans Kolvenbach, superior general of the Society of Jesus, this award is given by the president to a graduating senior who exemplifies the ideals of Jesuit education, especially being a "whole person of solidarity in the real world," and having the courage and faith to build a more just and humane world.

Nobili Medal

Established in 1876 by Joseph A. Donohoe in honor of John Nobili, S.J., founder of the University, this award is given to the male graduate judged outstanding in academic performance, personal character, school activities, and constructive contribution to the University by the faculty and the provost.

Saint Clare Medal

Established by the University in 1967 in honor of Saint Clare of Assisi, this award is given to the female graduate judged outstanding in academic performance, personal character, school activities, and constructive contribution to the University by the faculty and the provost.

Valedictorian

Established by the University in 1980, this honor is conferred annually on a graduating senior selected for outstanding academic achievement and University service as determined by the president in consultation with the faculty of the University and the provost.

Markkula Prize

Established in 1997 by the Advisory Board of the Markkula Center for Applied Ethics in honor of A.C. "Mike" Markkula Jr.'s leadership as chairman of the board. This award is given annually to a student in recognition of outstanding work in applied ethics.

Richard J. Riordan Awards

Established in 1984 by Richard J. Riordan, these awards are given annually to students judged outstanding in community service.

Inclusive Excellence Award for Students

This award, established in 2008 by the University Council on Inclusive Excellence, is given to a current student or student organization that has demonstrated a commitment to enhancing an inclusive environment at Santa Clara University. Current students or student organizations providing leadership in programming, training, or other experiences that enhance excellence through inclusion in the University community are eligible for this award.

Student Life Award

This award, established in 1984, is presented to the senior who has contributed to the overall quality of life in the University community.

COLLEGE OF ARTS AND SCIENCES AWARDS

Gerald and Sally DeNardo Senior Prize in Science Research

Established in 2007 to complement the Gerald and Sally DeNardo Lectureship, this prize is given by the dean to recognize outstanding science research accomplishment by a graduating senior who reflects the distinctive characteristics of a Jesuit education and is pursuing a career in the health sciences.

Orella Prize

Established in 1915 by Dr. and Mrs. Fermín R. Orella B.S. 1889, this prize is awarded to the senior science student who attains the highest average in scientific subjects during the junior and senior years.

ANTHROPOLOGY

Anthropology Program Award

This prize is given to a senior anthropology major who has done outstanding work in anthropological research.

ART AND ART HISTORY

Art History Research Paper Prize

This award is given for the best research paper produced on art history as judged by the faculty of the art and art history department.

Art History Symposium Prize

This award is given to the best presentation given at the annual Art History Student Research Symposium as judged by the faculty of the art and art history department.

Gerald P. Sullivan, S.J., Award

This award was created by Fr. Sullivan and his mother, Mary F. Sullivan, to honor a student or students who show extraordinary promise and outstanding effort in their studio art classes. Because Fr. Sullivan was a figurative artist of great skill, this award tries to encourage and support students who show great prose in this area.

CHEMISTRY

American Chemical Society Award in Analytical Chemistry

Sponsored by the American Chemical Society Division of Analytical Chemistry, this award honors a junior student for excellence in both lower- and upper-division analytical chemistry courses.

American Chemical Society Award in Inorganic Chemistry

Sponsored by the American Chemical Society Division of Inorganic Chemistry, this award honors an undergraduate student who has demonstrated excellence in inorganic chemistry and whose future plans include a career in chemistry.

American Chemical Society Polyed Undergraduate Award

Sponsored by the Polymer Education Committee of the American Chemical Society, this award honors a student for outstanding achievement in the Organic Chemistry I, II, and III course sequence.

American Institute of Chemists Foundation Award

Awarded to an outstanding senior chemistry major in recognition of a record of leadership, ability, character, and scholastic achievement.

CRC Freshman Student Chemistry Achievement Award

Sponsored by the Chemical Rubber Company, this award honors a first-year student for outstanding performance in the General Chemistry I and II course sequence.

Professor Joseph F. Deck Award

Established in 1973, this award is given by the faculty of the Department of Chemistry to the outstanding student majoring in chemistry who has excelled in studies and undergraduate research, extracurricular activities, leadership, and generous tutoring of fellow students, while maintaining a "B" average.

CLASSICS

The Augusta Prize

Established in 2013 in honor of Helen E. Moritz, Professor Emerita, by the faculty of the Department of Classics, this award is given to the most promising Greek student who continues from introductory into advanced Greek the following fall quarter. The award may take the form of a large Greek dictionary, textbooks, or other appropriate support for the continuing study of the Greek language.

Arete Prize

Established in 1997, this prize is given to the classics major or minor who writes the best single essay or research paper on a classical topic, as determined by the faculty of the Department of Classics.

Walter J. Kropp Prize

Established in 1997 in memory of Walter J. Kropp, S.J., by the faculty of the Department of Classics, this award is given to the senior classics major who has attained the highest grade point average in classics courses.

COMMUNICATION

Communication Department Prize

Established in 1985 by alumni and friends, this award is given by the faculty of the Department of Communication to the graduating senior who best meets the goals of the department—education of the mind, heart, and voice.

Handlery Prize

Established in 1947 by Mrs. Rose Handlery in memory of her son Raymond Handlery '34, this prize is awarded each year to the graduating senior who has contributed most to the success of student publications at the University.

Edward Shipsey, S.J., Journalism Prize

Established in 1984 by Alfred Orr Kelly in honor of Edward J. Shipsey, S.J., this prize is awarded to the outstanding junior student who has made a commitment to a career in journalism.

Justin T. McCarthy Award

Established in 1976 in memory of Justin T. McCarthy, this award is given to the senior student who has excelled in oratory or other forms of public expression.

Ryland Prize

Established in 1897 by the Hon. Caius T. Ryland, this award is given to the winners of the annual Ryland debate. Focusing on current social and political issues, this public debate is held each spring and is judged by a faculty committee.

ENGLISH

Academy of American Poets Prize

Founded in 1994 by Victoria Verga Logan and Frank Verga Jr. in memory of Tamara Verga, this prize is given to the undergraduate who writes the best group of poems, as determined by an annual competition.

First-Year Critical Thinking and Writing Prize

Established by the Department of English in 1983, this prize honors the student who has written the best essay for a composition and rhetoric I class, as determined by a faculty panel.

Christiaan Theodoor Lievestro Prize

Founded in 2000 by Christiaan T. Lievestro, this prize is awarded to the senior English major whose portfolio of essays best demonstrates a sustained, improved, and/or versatile ability to think and write about complex literary, critical, cultural, rhetorical, or theoretical issues, as determined by a faculty panel.

McCann Short Story Prize

Established in 1894 in honor of Daniel M. McCann B.S. 1884, this award is given by the Department of English to the author of the best short story, as determined by an annual competition.

Shipsey Poetry Prize

Established in 1954 by Richard W. Schmidt in honor of the late Edward Shipsey, S.J., this prize recognizes the outstanding contribution in the art of poetry, as determined by an annual competition.

Katherine Woodall Prize in Literary Criticism

Established in 1995 by the Department of English in honor of alumna and friend Katherine Woodall '78, this prize is awarded to the senior English major whose essay best exemplifies analysis of literary texts and/or issues in literary theory, as determined by a faculty panel.

ENVIRONMENTAL STUDIES AND SCIENCES

Lucky Hinkle Sustainability Award

This award was established to honor the memory of Lucky Hinkle, longtime University staff member who worked diligently to promote recycling on campus, and is given to the graduating senior with a declared major in environmental science or environmental studies who, in the judgment of the environmental studies and science faculty, has made the most significant contribution to promoting a culture of sustainability at Santa Clara University and beyond.

ETHNIC STUDIES

Matt Meier Prize in Ethnics Studies

Established in 1994 in honor of history professor Matt Meier, a longtime supporter of the Ethnic Studies Program and one of the pioneers in the field of Chicana/o studies, this award consists of two categories: (1) Best course paper on race and ethnicity, and (2) Best ethnic studies senior capstone on race and ethnicity.

HISTORY

McPhee Prize

This annual award was established in 2007 through the generosity of Lulu and John McPhee for the best presentation of original historical research as determined by the faculty of the Department of History.

Frederick J. Mehl Prize

An annual prize established in 1993 by the department in memory of friend and benefactor Frederick J. Mehl, B.A. '74, M.A. '75, this award is given to the student who writes the best senior thesis as determined by the faculty of the Department of History.

The Redwood Prize

Established in 1908 by the executive committee of *The Redwood*, this award is given to the student who writes the best essay on a historical subject as determined by the faculty of the Department of History.

LIBERAL STUDIES

Child Advocacy Award

Established in 2014, this award is given to a graduating senior by the faculty of the Liberal Studies program who has exemplified Jesuit values of "Competence, Conscience, and Compassion" in service of children and families.

Liberal Studies Academic Achievement Award

Established in 1995, this award is given to the senior liberal studies major with the highest overall grade point average at Santa Clara.

Pre-Teaching Awards

Established in 1995, these awards are given to senior liberal studies students judged most outstanding in scholarship and professional service who plan to go on to careers in teaching.

MATHEMATICS

Robert P. Balles SCU Mathematics Scholars Award

This award is given to the mathematics major entering his or her senior year with the highest cumulative grade point average in mathematics courses completed in the student's first three years at Santa Clara University.

George W. Evans Memorial Prizes

Established in 1972 by the family and friends of the late George W. Evans II, professor of mathematics at Santa Clara University, these awards are given to the students placing highest in the William Lowell Putnam Mathematical Competition. A third award is given to the student judged most outstanding in mathematical writing and research by a panel of mathematics consultants.

Freshman Student Mathematics Prize

Established in 1958, this annual award is given by the faculty of the Department of Mathematics and Computer Science to the first-year student who demonstrates excellence in mathematical study and achievement, determined by a competitive examination each spring.

Paul R. Halmos Prize

This prize is awarded to the senior student or students with an outstanding academic record judged to have distinguished themselves in mathematics or computer science beyond the standard coursework.

MILITARY SCIENCE

Armed Forces Communications and Electronics Award

Established by the Department of the Army at Santa Clara in 1973, this annual award is given by the faculty of the Department of Military Science to the cadet in a communications or electronics field who excels in academic achievement, demonstrated leadership potential, and meritorious contribution to the ROTC program.

Association of the U.S. Army ROTC Medal

Established by the Department of the Army at Santa Clara in 1956, this award is given by the faculty of the Department of Military Science to the junior cadet judged most outstanding in meritorious academic attainment, exemplary conduct, efficiency, and fidelity.

Distinguished Military Graduate Award

Given to those graduating Army ROTC cadets who rank in the top 20 percent of all cadets nationally as determined by academic GPA and performance in the Army ROTC program.

George C. Marshall ROTC Award

Established by the Department of the Army at Santa Clara in 1977, this award is given by the faculty of the Department of Military Science to the cadet judged most outstanding in military studies and leadership.

Superior Cadet Award

Established by the Department of the Army at Santa Clara in 1958, these ribbons are given by the faculty of the Department of Military Science to the cadet in each of the four years of training who consistently demonstrates potential qualities of an officer, outstanding performance of duty, and overall proficiency.

MODERN LANGUAGES AND LITERATURES

Geoff and Josie Fox German Studies Award

This award is given to cultivate and encourage students to learn the German language and to familiarize themselves with the German culture. Preference is given to students who have shown a consistent interest in German culture; who have an understanding of the experience, values, and traditions of Germanic speaking countries; and who have declared a major in German.

French and Francophone Studies Prize

Established in 2012, this prize is awarded for outstanding achievement in the study of French and Francophone literature and culture.

Celeste Fritchle Award

Established in 2003 by the friends and family of the late Celeste Fritchle, a longtime University staff member, this award is given by the Department of Modern Languages and Literatures to a junior or senior student with a declared major in modern languages and literatures who has excelled in the study of more than one foreign language.

Pancrazio and Giulia Infantino Italian Award

This award is given to cultivate and encourage the pursuit of the Italian language and culture at Santa Clara University. It is given to students who have an understanding of the experiences, values, and traditions of Italian culture, primarily demonstrated by a declared major in Italian.

Richard F. Rebello Phi Sigma Iota Awards

Established in 1986 by the family of the late Richard Rebello, a longtime University staff member, these awards are given by the Modern Languages Department to junior or senior language majors for outstanding accomplishments in the study of foreign language and culture.

Andrew I. Rematore Award

This award is given to graduating seniors with a declared major in Spanish Studies who have excelled in the major and plan to enter the teaching profession at the elementary or secondary level.

MUSIC

American Choral Directors Association National Choral Student Award

This award is given to a student who has been involved in continued participation in choral ensembles, has provided service to the ensemble and conductor, has demonstrated a high degree of choral proficiency and music literacy, and has contributed to the advancement of choral singing at the University.

Arrigo and Caterina Descalzi Prize

Established in 1990 in honor of Arrigo and Caterina Descalzi, this award is presented to the senior music student who, in the judgment of the faculty of the Department of Music, best demonstrates technical and artistic growth and dedication to the art of music.

PERFORMING ARTS

Charles Lampkin Award for Performance

This annual award, established in 1989 in honor of Charles Lampkin, the late actor and University artist-in-residence, is given to the junior or senior African-American student who has demonstrated excellence and commitment to performance in theatre, music, dance, or television.

PHILOSOPHY

Fallon Prize

Established in 1995 in memory of Timothy Fallon, S.J., by the faculty of the Department of Philosophy, this award is given to the junior student demonstrating outstanding achievement in the study of philosophy.

Sanford Prize

Established in 2012 by Allen Sanford, this award is given by the faculty of the Department of Philosophy for the best philosophical essay on a designated topic.

Sourisseau Prize

Established in 1956 by Eva Sourisseau in honor of her parents and family, this award is given by the faculty of the Department of Philosophy to the senior student demonstrating outstanding achievement in the study of philosophy.

PHYSICS

David Blockus Award

Established in 2007 in memory of David L. Blockus, Ph.D., this prize is presented each year to the outstanding senior physics major, as determined by the faculty of the Department of Physics.

Carl H. Hayn Physics Prize

Established in 1997 by William and Katherine Duffy in honor of Carl H. Hayn, S.J., longtime physics professor at Santa Clara University. The prize is awarded annually to the most outstanding student in the sequence Physics for Scientists and Engineers I, II, and III, as selected by the faculty who teach the sequence.

John B. Drahmann Prize in Physics

Established in memoriam in 2001 by Jean Drahmann, this prize is awarded to the graduating senior physics major who best exemplifies the hard-working and earnest values of John B. Drahmann, longtime dean of sciences and professor of physics.

POLITICAL SCIENCE

The Amos Dana Award for Distinction in Public Service

This award honors excellent performance and personal growth through hands-on public sector experience, potential for success in a career or studies in the public sector, and/or outstanding research related to a public sector project.

Michael Shallo Prize

Established by the University in 1955 in honor of Michael Shallo, S.J., the award is given by the faculty of the Department of Political Science to the student judged most proficient in political science.

PSYCHOLOGY

Wilhelm Wundt Award

Established in 1988, this award is given annually by the faculty of the Department of Psychology to the senior student who has excelled in scholarship, research, and service to the department.

PUBLIC HEALTH

Public Health Science Senior Prize

Established in 2012, this award is given annually to a graduating senior public health science major who has demonstrated outstanding academic achievement, while actively and effectively promoting community health through extracurricular activities.

RELIGIOUS STUDIES

Catherine Bell Award

Established in 2009, this award is given to junior religious studies majors for outstanding academic achievement.

The Joseph A. Grassi Social Justice Award

This award is given annually to the student who has exhibited the greatest commitment to social justice.

Religious Studies Chair's Recognition Awards

Established in 2012, this award is given to a religious studies major or minor who has demonstrated outstanding academic promise and a commitment to the values of the profession.

Religious Studies Major Prize

Established in 1950 by the president of the University, this prize is given each year by the faculty of the Department of Religious Studies to the department major most proficient in all aspects of religious studies.

Theodore Mackin Senior Thesis Award

Established in 1994 in memory of Theodore Mackin, this prize is given each year by the faculty of the Department of Religious Studies to the religious studies major with the best senior research paper.

Tennant C. Wright, S.J. Religious Studies Minor Prize

Established in 2003, this prize is given annually by the faculty of the Department of Religious Studies to the religious studies minor most proficient in the religious studies program.

SOCIOLOGY

Witold Krassowski Sociology Award

Established by the department, alumni, and friends in honor of Professor Witold Krassowski, the first sociologist at Santa Clara University and the first chair of the department. The award is given to a senior sociology major who has written a sociological research paper in a sociology course that is considered of exemplary quality.

THEATRE AND DANCE

Anna Halprin Dance Award

This award honors the extended creative and socially active career of Anna Halprin, a pioneer in the art of dance. This award is given to senior dancers who best exemplify excellence in dance and an awareness of community values while at Santa Clara University.

William H. Leahy Prize

Established in 1925 in honor of William H. Leahy by his wife and his brother James, this prize is awarded to the graduating senior who has made the greatest contribution to dramatic art at Santa Clara as determined by the members of the Department of Theatre and Dance.

WOMEN'S AND GENDER STUDIES

Mary Gordon Prize

Established in 1992 in honor of Professor Mary Gordon, founder of the Women's Studies Program and its first director, this prize is awarded to the women's studies student who writes the best essay on a women's studies topic.

Nina Liebman Essay Competition

Recognizes the student addressing the general topic of women and creative expression. The essay is judged by the faculty of the Women's and Gender Studies Department.

LEAVEY SCHOOL OF BUSINESS AWARDS

Charles J. Dirksen Prize

Established in 1965 by Eliot Jones, Ph.D., in honor of Charles J. Dirksen, late dean and professor of marketing emeritus, this prize is awarded to the junior in the Leavey School of Business with the highest cumulative grade point average.

Leavey School of Business Leadership Award

This award honors the graduating business student who best demonstrates leadership in curricular, co-curricular, and community endeavors as evidenced by his or her commitment and dedication to exhibiting leadership within the School of Business and Santa Clara University. This student continuously motivates and inspires his or her colleagues to make significant contributions to the community in the context of the University mission.

Leavey School of Business Service Award

This award honors the graduating business student who exemplifies the mission of the University by significantly impacting student life and/or the greater community through personal service.

Isabel Jones Academic Achievement Prize

Established by Eliot Jones, Ph.D., in 1956 in memory of his wife, Isabel, this award is given to the graduating senior in the Leavey School of Business who has earned the highest cumulative grade point average.

Outstanding Student Entrepreneur Award

This award is presented by the Center for Innovation and Entrepreneurship (CIE) to a graduating student in recognition of significant achievements and involvement in CIE endeavors, acknowledgment of accomplishments in entrepreneurship, and the promise of future success.

Delta Sigma Pi Scholarship Key

This award is given by the International Fraternity of Delta Sigma Pi to the graduating senior student with the highest grade point average for all coursework toward a degree in business administration or economics.

ACCOUNTING

Professor O. Robert Anderson Outstanding Student in Accounting Award

Established in 1973, this award is given in memory of Professor O. Robert Anderson, who taught accounting at the University. Awarded annually to the graduating senior accounting major judged outstanding in scholarship, leadership, and service by the faculty of the department.

Outstanding Student in Accounting and Information Systems Award

This award honors the graduating senior accounting and information systems major recognized by the faculty of the department as having achieved high academic performance, possessing strong leadership skills, exhibiting a commitment to service, and demonstrating career potential for professional success in accounting and information systems.

ECONOMICS

Charles and Barbara Hazel Outstanding Student in Economics Award

In recognition of the contributions made by Charles and Barbara Hazel in the economics department, this award is given annually to the graduating senior economics major judged outstanding in scholarship, leadership, and service by the faculty of the department.

FINANCE

Outstanding Student in Finance Award

This award honors the graduating senior finance major recognized by the faculty of the department as having achieved high academic performance, possessing strong leadership skills, exhibiting a commitment to service, and demonstrating career potential for professional success in finance.

MANAGEMENT

Outstanding Student in Management Award

This award is granted to the senior management major who, through high overall grade point average, has demonstrated noteworthy scholarship, strong leadership, and managerial aptitude in co-curricular activities.

MARKETING

Albert F. Bruno Outstanding Student in Marketing Award

Established in 1982 in memory of Albert F. Bruno by Albert V. Bruno and family, this award is conferred annually to the outstanding graduating senior marketing major on demonstration of scholarship, leadership, service, and career potential.

OPERATIONS MANAGEMENT AND INFORMATION SYSTEMS

Outstanding Student in Management Information Systems Award

This award is given to the graduating senior management information systems major recognized by the faculty of the department as having achieved high academic performance, possessing strong leadership skills, exhibiting a commitment to service, and demonstrating career potential for professional success in management information systems.

SCHOOL OF ENGINEERING AWARDS

Award for Research Excellence in Undergraduate Engineering

This award honors a senior undergraduate engineering student who has demonstrated excellence in research while an undergraduate.

Brian Drocco Award

This award is presented to a graduating senior who applies an entrepreneurial mindset, innovative problem-solving capability, and enthusiasm for perseverance despite obstacles to the advancement of green energy and sustainability. Established in 2014, this award honors the memory of Brian Drocco '08, whose indomitable spirit continues to inspire.

Raymond M. Galantine Award

Established in 1996 to honor the memory of Raymond M. Galantine '53, this award recognizes an outstanding engineering student who has demonstrated a commitment to putting into practice the Catholic and Jesuit ideal of people in the service of others.

James W. Reites, S.J., Award

Established in 2010, this award recognizes an outstanding senior engineering student who best exemplifies the values espoused by Fr. James Reites. The award is given to a selfless team player whose strong work ethic, love for learning, relentless can-do spirit, and commitment to the service of others makes them the heart and soul of any project in which they are involved.

School of Engineering Humanities Award

This award is conferred each year on an engineering student who has been nominated by members of the humanities faculty and selected by the School of Engineering for outstanding work in the humanities while maintaining a strong record in engineering.

Senior Design Presentation Awards

This award is given to senior design groups in the School of Engineering who produce the best presentation in each of the following areas: civil engineering, computer engineering, electrical engineering, mechanical engineering, and interdisciplinary engineering. The award recipients are selected by a panel of external judges.

Senior Engineering Project Ethics Prize

This prize is awarded to the individual or team whose ethical analysis of their senior project is judged the best in the School of Engineering.

BIOENGINEERING

Academic Achievement Award in Bioengineering

This award is given to a graduating senior by the faculty of the Bioengineering Department for achieving the highest GPA in the bioengineering graduating class.

Bioengineering Excellent Service and Outreach Award

This award is given to a graduating senior by the faculty of the Bioengineering Department who has demonstrated excellent services to the department and school, the university, and local community.

Bioengineering Award for Research Excellence

This award is given to one or more senior undergraduate bioengineering students who have demonstrated excellence in research.

Outstanding Bioengineering Senior Award

This award is given to a senior by the faculty of the Bioengineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

CIVIL ENGINEERING

Edmund C. Flynn Memorial Awards

Established in 1981 by Mrs. Edmund C. Flynn in memory of her husband, these awards are given to the graduating civil engineering student presenting the best thesis and to the two junior civil engineering students with the highest scholastic averages.

Outstanding Civil Engineering Senior Award

This award is given to a senior by the faculty of the Civil Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

Regan Memorial Award

Established in 1977 in memory of Patrick W. Regan '47, this award is given to the outstanding juniors in civil engineering as determined by the faculty of the department.

Harold M. Tapay Award

Established in 1989, this award is given annually to a civil engineering student based on academic performance, financial need, and contributions to the school.

COMPUTER ENGINEERING

Computer Engineering Award for Technical Excellence

Awarded to seniors by the faculty of the Computer Engineering Department based on academic standing, esprit de corps, and contribution to the department, school, and community.

Outstanding Computer Engineering Senior Award

This award is given to a senior by the faculty of the Computer Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

ELECTRICAL ENGINEERING

Academic Achievement Award in Electrical Engineering

This award is given to a graduating senior by the faculty of the Electrical Engineering Department for achieving the highest GPA in the electrical engineering graduating class.

Outstanding Electrical Engineering Senior Award

This award is given to a senior by the faculty of the Electrical Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

MECHANICAL ENGINEERING

William J. and Marijane E. Adams Jr. Awards

Established in 1990 by William J. and Marijane E. Adams Jr., one award is conferred annually to an outstanding mechanical engineering undergraduate student with financial need, and one award provides a stipend for an outstanding graduating senior in mechanical engineering to continue to graduate school at Santa Clara.

Outstanding Mechanical Engineering Senior Award

This award is given to a senior by the faculty of the Mechanical Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

Academic Accreditations

University Accreditation

Western Association of Schools and Colleges (WASC)
Senior College and University Commission
985 Atlantic Avenue, Suite 100
Alameda, CA 94501
510-748-9001

Specialized Academic Accreditations

ABET Inc.

American Bar Association

American Chemical Society

Association of American Law Schools

Association of Theological Schools

Association to Advance Collegiate Schools of Business–Accounting

Association to Advance Collegiate Schools of Business–International

California Board of Behavioral Sciences Accredited Marriage and Family Therapists

California State Commission on Teacher Credentialing

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ACADEMIC DEPARTMENT AND PROGRAM ABBREVIATIONS

ACTG ..... Accounting
AERO..... Aerospace Studies
AMTH..... Applied Mathematics
ANTH ..... Anthropology
ARAB.....Arabic Studies
(in Modern Languages and Literatures)
ARTH ..... Art History
ARTS.....Studio Art
ASCI.....Arts and Sciences
ASIA.....Asian Studies
BIOE.....Bioengineering
BIOL .....Biology
BUSN .....Business Administration
CENG .....Civil Engineering
CHEM .....Chemistry
CHIN ..... Chinese Studies
(in Modern Languages and Literatures)
CLAS.....Classics
(including Latin and Greek)
COEN .....Computer Engineering
COMM ..... Communication
CSCI ..... Computer Science
DANC ..... Dance
ECON ..... Economics
EDUC..... Education
ELEN .....Electrical Engineering
ELSJ ..... Experiential Learning
for Social Justice
EMGT ..... Engineering Management
ENGL .....English
ENGR..... Engineering
ENVS..... Environmental Studies
ETHN.....Ethnic Studies
FNCE..... Finance
FREN..... French and Francophone Studies
(in Modern Languages and Literatures)
GERM ..... German Studies
(in Modern Languages and Literatures)
HIST .....History
HNRS ..... University Honors Program
INTL .....International Programs
ITAL ..... Italian Studies
(in Modern Languages and Literatures)
JAPN .....Japanese Studies
(in Modern Languages and Literatures)
LEAD .....Leadership, Excellence,
and Academic Development
LAS..... Latin American Studies
LBST..... Liberal Studies
MATH .....Mathematics
MECH.....Mechanical Engineering
MGMT.....Management
MILS.....Military Science
MRST ....Medieval and Renaissance Studies
MKTG .....Marketing
MUSC .....Music
OMIS.....Operations Management
and Information Systems
PHIL.....Philosophy
PHSC.....Public Health Science
PHYS ..... Physics
POLI ..... Political Science
PSYC.....Psychology
RLC.....Residential Learning Community
RSOC .....Religion and Society
(in Religious Studies)
SCTR.....Scripture and Tradition
(in Religious Studies)
SOCI..... Sociology
SPAN .....Spanish Studies
(in Modern Languages and Literatures)
TESP .....Theology, Ethics, and Spirituality
(in Religious Studies)
THTR..... Theatre
WGST.....Women's and Gender Studies

Santa Clara University Campus Map

MAP LEGEND

Academic Departments	Building	No.	Loc.
Anthropology Dept.	O'Connor Hall	111	B3
Applied Mathematics Dept.	Bannan Engineering	404	C5
Art & Art History Dept.	Fine Arts Bldg.	601	C8
Arts & Sciences, College of	Vari Hall	804	C4
Asian Studies Program	Vari Hall	804	C4
Biology Dept.	Alumni Science	208	B3
Catholic Studies Program	Kenna Hall	204	B6
Center for Nanostructures	Bannan Engineering	404	C5
Center for Prof. Development	Loyola Hall	425 El Camino Real	E10
Chemistry and Biochemistry Dept.	Daly Science	211	B3
Civil Society Institute	Lucas Hall	802	C3
Classics Dept.	874 Lafayette St.		A5
Combined Sciences Program	Daly Science	211	B3
Communication Dept.	Vari Hall	804	C4
Computer Engineering Dept.	Bannan Engineering	404	C5
Counseling, Psychology Dept.	Loyola Hall	425 El Camino Real	E10
E-Commerce Initiative	Lucas Hall	802	C3
Economics Dept.	Lucas Hall	802	C3
Education and Counseling Psychology, School of	Loyola Hall	425 El Camino Real	E10
Engineering, School of	Bannan Engineering	404	C5
English Dept.	St. Joseph's Hall	102	B5
Environmental Studies & Sciences Dept.	Varsi Hall	106	A5
Ethnic Studies	St. Joseph's Hall	102	B5
Food & Agribusiness Institute	Lucas Hall	802	C3
Gerontology Program	Alumni Science	208	B3
History Dept.	O'Connor Hall	111	B3
Individual Studies Program	O'Connor Hall	111	B3
Jesuit School of Theology, (SCU office)	Kenna Hall	204	B6
Law, School of	Heafey Library	202	B5
Law, Faculty Support Services	Bergin Hall	203	B5
Law, Library	Heafey Library	202	B5
Leavey School of Business	Lucas Hall	802	C3
Liberal Studies	Varsi Hall	106	A5
Mathematics & Computer Science	O'Connor Hall	111	B3
Medieval/Renaissance Program	874 Lafayette St.		A4
Military Science Dept.	Varsi Hall	106	A5
Modern Lang. & Literature Dept.	Kenna Hall	204	B6
Music Dept.	Music & Dance Bldg.	114	A3
Operations Management & Information Systems (OMIS)	Lucas Hall	802	C3
Osher Lifelong Learning Institute	Loyola Hall	425 El Camino Real	E10
Pastoral Ministries, Graduate Program	890 Benton		A2
Philosophy Dept.	Kenna Hall	204	B6
Physics Dept.	Daly Science	211	B3
Political Science Dept.	Vari Hall	804	C4
Psychology Dept.	Alumni Science	208	B3
Public Health Program	Vari Hall	804	C4
Religious Studies Dept.	Kenna Hall	204	B6
Sociology Dept.	O'Connor Hall	111	B3
Summer Program (Undergraduate)	Vari Hall	804	C4
Theatre & Dance Dept.	Mayer Theatre	110	A3
University Honors Program	St. Joseph's Hall	102	B5
Women's & Gender Studies	St. Joseph's Hall	102	B5
Young Scholars Program	Vari Hall	804	C4

University Administration Offices	Building	No.	Loc.
ACCESS Card Office	Benson Center	301	B6
Activities Programming Board (APB)	Locatelli Activity Center	710	E6
Admission & Enrollment Services	Schott Admission & Enrollment Services Building	406	C5
Adobe Lodge	Adobe Lodge	108	A5
Affirmative Action Office	475 El Camino Real		E4
Alumni Relations	Donohoe Alumni	103	B6
Associated Students (ASSCU)	Locatelli Activity Center	710	E6
Athletics	Leavey Center	702	E6
Bronco Bench Foundation	Leavey Center	702	E6
Bronco Corner Bookstore	Benson Center	303	B6
Bursar's Office	Schott Admission & Enrollment Services Building	406	C5
California Legacy Project	St. Joseph's Hall	102	B5
California Studies Initiative (CASI)	Bannan Hall	405	C5
Campus Ministry	Benson Center	301	B6
Campus Safety Services	Parking Structure	714	C6
Career Center	Benson Center	301	B6
Center for Student Leadership	Locatelli Activity Center	710	E6
Center for Sustainability	Varsi Hall	106	A5
Counseling & Psychological Services (CAPS)	Cowell Building	701	D7
Cowell Health Center	Cowell Building	701	D7
Credit Counseling	Schott Admission & Enrollment Services Building	406	C5
Development Office	Loyola Hall	425 El Camino Real	E10
Dining Services	Benson Center	301	B6
Disabilities Resources	Benson Center	301	B6
Drahmann Advising & Learning Resources Center	Kenna Hall	204	B6
Facilities	Support Services Bldg.	604	D9
Faculty Development Program	St. Joseph's Hall	102	B5
Finance & Administration, V.P.	Walsh Admin. Bldg.	201	B4
Financial Aid Office	Schott Admission & Enrollment Services Building	406	C5
Global Engagement	Varsi Hall	106	A5
Housing	Benson Center	301	B6
Human Resources	475 El Camino Real		E4
Information Desk	Benson Center	301	B6
Information Technology (IT)	Learning Commons	401	C6
Institutional Research	Walsh Admin. Bldg.	201	B4
International Student Services	Varsi Hall	106	A5
Jesuit Community	Jesuit Residence	801 Franklin St.	A3
Law, The Advocate & Student Bar Assoc.	Bannan Hall	405	C5
Law, Development & Alumni Relations	Bannan Hall	405	C5
Media Services	Learning Commons	401	C6
Multicultural Center	Shapell Lounge	302	B6
Multicultural Learning Office	St. Joseph's Hall	102	B5
Northern California Innocence Project	900 Lafayette St.		A3
Office of Fellowships	St. Joseph's Hall	102	B5
Office of General Counsel	Nobili Hall	109	A4
Office of Marketing & Communications	Loyola Hall	425 El Camino Real	E10

University Administration Offices	Building	No.	Loc.
Office of the Registrar	Schott Admission & Enrollment Services Building	406	C5
Office of Undergraduate Studies	Varsi Hall	106	A5
Planning and Projects	Support Services Bldg.	604	D9
Post Office	Benson Center	301	B6
President's Office	Walsh Admin. Bldg.	201	B4
Provost's Office	Walsh Admin. Bldg.	201	B4
Recreation	Malley Center	715	D6
Residence Life	Benson Center	301	B6
Resident Ministry	Benson Center	301	B6
Residential Learning Communities	Benson Center	301	B6
Sponsored Projects	St. Joseph's Hall	102	B5
Student Life	Benson Center	301	B6
Transportation Services	Main Parking Structure	714	D5
Undergraduate Admission	Schott Admission & Enrollment Services Building	406	C5
University Archives	Learning Commons	401	C6
University Cashier	University Finance Office		E4
University Event Planning Office	Walsh Admin. Bldg.	201	B4
University Finance Office	475 El Camino Real		E4
University Operations	Support Services Bldg.	604	D9
University Relations	Loyola Hall	425 El Camino Real	E10
Wellness Center	Kennedy Commons	306	A6

Centers	Building	No.	Loc.
Center for Innovation & Entrepreneurship	Lucas Hall	802	C3
Miller Center for Social Entrepreneurship	Nobili Hall	109	A4
Ignatian Center for Jesuit Education	Sobrato Hall	605A	C8
Markkula Center for Applied Ethics	Vari Hall	804	C4

Resident Halls	No.	Loc.
Bellarmine Residence Hall	2505 The Alameda	C10
Campisi Residence Hall	505	C7
Casa Italiana Residence Hall	602	D8
Dunne Residence Hall	308	A7
Graham Residence Hall	501	C7
McLaughlin-Walsh Residence Hall	304, 305	A6
Sanfilippo Residence Hall	506	D8
Sobrato Residence Hall	605	C8
St. Clare Residence Hall	3355 The Alameda	B1
Swig Residence Hall	307	A7
University Villas	1260 Campbell Ave.	F7

Alphabetical Order	No.	Loc.
Admission and Enrollment Services	406	C5
Adobe Lodge	108	A5
Alumni Science Hall	208	B3
Bannan Engineering Building	404	C5
Bannan Engineering Laboratories	403	C5
Bannan Hall	405	C5
Bellarmine Residence Hall	*	C10
Benson Memorial Center	301	B6
Bergin Hall	203	B5
Bronco Corner Bookstore	303	B6
Campisi Residence Hall	505	C7
Campus Safety Services	714	C6
Casa Italiana Residence Hall	602	D8
Commons at Kennedy Mall	306	A6
Cowell Health Center	701	D7
Daly Science Center	207, 210, 211	B3
de Saisset Museum	206	B4
Donohoe Alumni House	103	B6
Dunne Residence Hall	308	A7
Fine Arts Building	601	C8
Graduate Pastoral Ministries	*	A2
Graham Residence Hall	501	C7
Heafey Law Library	202	B5
Ignatian Center	605A	D8
Jesuit Community Residence	*	A2
Kenna Hall	204	B6
Law, School of	202, 203	B5
Learning Commons, Tech. Center, and Library	401	C6
Leavey Event Center	702	E6
Locatelli Student Activity Center	710	E5
Loyola Hall	*	E10
Lucas Hall	802	C3
Main Parking Structure	714	D5
Malley Fitness & Recreation Center	715	D6
Mayer Theatre	110	A3
McLaughlin-Walsh Residence Hall	304, 305	A6
Mechanical Engineering	402	C6
Mission Santa Clara de Asis	101	A4
Music & Dance, Recital Halls	114	A3
Nobili Residence Hall	109	A4
O'Connor Hall	111	B3
Performing Arts Annex Building	*	B1
Restrooms	107	A5
Ricard Memorial Observatory	104	A6
Sanfilippo Residence Hall	506	D8
Schott Stadium	*	F8
SCU Presents	114	A3
Shapell Lounge	302	B6
Sobrato Residence Hall	605A&B	C8

* *See "Off Campus Addresses" on page 562.*

Alphabetical Order	No.	Loc.
Solar Decathlon House, 2007		C2
Solar Decathlon House, 2009	717	C6
St. Clare Residence Hall	*	B1
St. Joseph's Hall	102	B5
Stevens Stadium	706	D5
Sullivan Aquatic Center	702	D6
Sullivan Engineering Center	402, 403, 404	C5
Support Services	604	D9
Swig Residence Hall	307	A7
University Villas	*	F7
Vari Hall	804	C4
Varsi Hall	106	A5
Visitor Kiosk	704	D4
Walsh Administration Building	201	B4

Schools	Loc.
College of Arts & Sciences	
Main office in Vari Hall	804
Leavey School of Business	
Main office in Lucas Hall	802
School of Engineering	
Main office in the Bannan Engineering Building	404
School of Law	
Bergin Hall	203
and Heafey Law Library	202
School of Education and Counseling Psychology	
Loyola Hall	425 El Camino Real
Jesuit School of Theology	
Berkeley Campus	
1735 Le Roy Ave.	
Berkeley, CA	
Santa Clara Campus	
Kenna Hall	204

* *See "Off Campus Addresses" on page 562.*

Off Campus Addresses	**Loc.**
Bellarmine Residence Hall 2505 The Alameda	C10
Classics 874 Lafayette St.	A4
School of Education and Counseling Psychology East San Jose Satellite Campus 14271 Story Rd. San Jose, CA 95127	
Graduate Pastoral Ministries 890 Benton St.	
Human Resources 475 El Camino Real	E3
Jesuit Residence 801 Franklin St.	A2
Jesuit School of Theology 1735 Le Roy Avenue Berkeley, CA	
Katharine & George Alexander Community Law Center 1030 The Alameda	
Kids on Campus Bellomy Street at The Alameda	B8
Loyola Hall 425 El Camino Real	E10
Northern California Innocence Project 900 Lafayette St.	A3
Performing Arts Annex 733 Benton St.	B1
Schott Stadium 443 El Camino Real	F8
St. Clare Residence Hall 3355 The Alameda	B1
University Finance Office 475 El Camino Real	E4
University Villas 1260 Campbell Ave.	F7

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Santa Clara University prohibits discrimination and harassment on the basis of race, color, religious creed, sex, gender, gender expression, gender identity, sexual orientation, religion, marital status, registered domestic partner status, veteran status, age, national origin or ancestry, physical or mental disability, medical condition including genetic characteristics, genetic information, or any other consideration made unlawful by federal, state, or local laws in the administration of its educational policies, admissions policies, scholarships and loan programs, athletics, or employment-related policies, programs, and activities; or other University-administered policies, programs, and activities.

Additionally, it is the University's policy that there shall be no discrimination or retaliation against employees or students who raise issues of discrimination or potential discrimination or who participate in the investigation of such issues. The University will provide reasonable accommodations for the known physical or mental limitations of an otherwise qualified individual with a disability under the law.

Inquiries regarding equal opportunity policies, the filing of grievances, or requests for a copy of the University's grievance procedures covering discrimination and harassment complaints should be directed to:

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FL-11931 06/2015 3,100

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